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RAILWAY AGE

THE STANDARD RAILROAD WEEKLY FOR ALMOST A CENTURY

FEBRUARY 2, 1953

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GENEVA COLLEGE

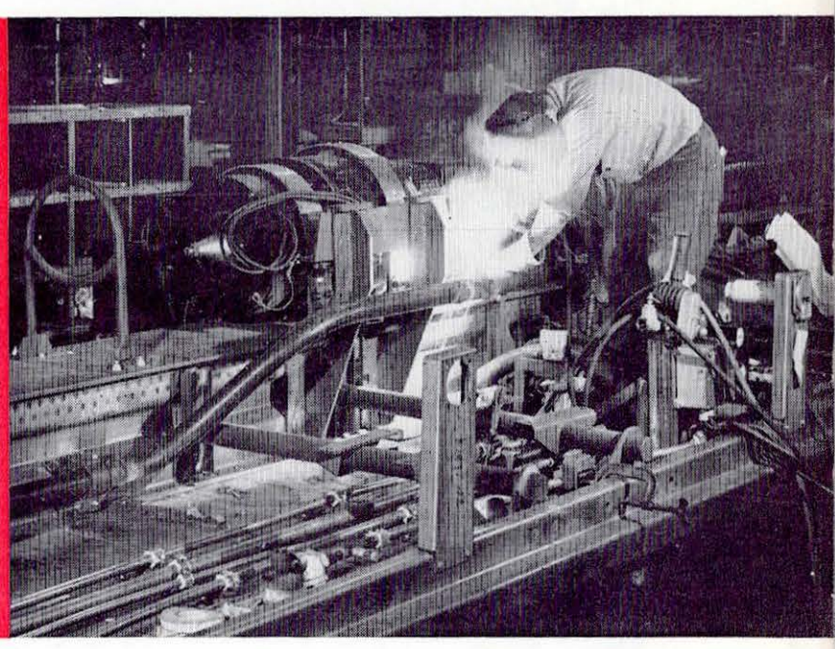
In C B & Q's new Kansas City and American Royal Zephyrs

BYERS WROUGHT IRON PIPE

HELPS ASSURE

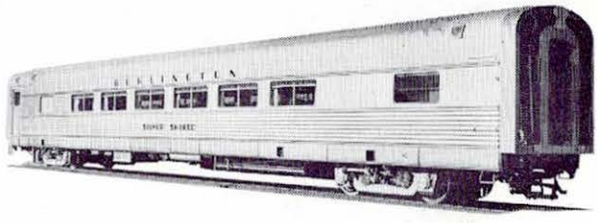
ON TIME between station stops . . .

LONG TIME between maintenance stops



Four new additions to the famed Chicago, Burlington & Quincy fleet, the Kansas City and the American Royal Zephyrs, continue the Line's traditional practice of selecting materials to assure maximum dependability of service. This insistence on durability is evidenced in the use of corrosion-and-fatigue-resistant Byers Wrought Iron pipe for steam lines and air brake piping in each of the new 34 streamlined cars. The cars, all manufactured by The Budd Company, Philadelphia, Pa., will be used for daytime and overnight passenger service between Chicago and Kansas City.

The main illustration shows the installation of Byers Wrought Iron pipe on one of the cars. Here, a worker is welding lengths of this time-tested material for the steam line. The floor of the car is upside down to ease installation of equipment. When the installation job is finished, the floor will be reversed, and the roof, ends and sides will be added to complete the car body.



Byers Wrought Iron's widespread use by the nation's major carriers in these services, and many others, is the best evidence of its superior durability and economy. For more complete information on its use in the railroad industry, and the reasons behind its ability to last longer, at lower cost per year, write for our Railroad Folder.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N. Y.

BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

SERVICE

goes with TEXACO Railroad Lubricants

IN ALL 48 STATES you'll find Texaco Systematic Engineering Service at work. The men who render it have an engineering know-how that goes far beyond mere lubricant recommendations. Let them help you reduce costs and increase equipment availability. Just call the nearest Railway Sales Office listed below, or write The Texas Company, *Railway Sales Department,* 135 East 42nd Street, New York 17, N. Y.

NEW YORK ★ CHICAGO ★ SAN FRANCISCO ★ ST. PAUL ★ ST. LOUIS ★ ATLANTA

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AND SYSTEMATIC ENGINEERING SERVICE

IN ALL 48 STATES

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE, on television Tuesday nights. METROPOLITAN OPERA radio broadcasts Saturday afternoons.

Takes the fight out of Heavy Switches

This is a switch stand with plenty of power—the type of power needed with heavy rail. It's Bethlehem's Model 53, one of the simplest, most "muscular" stands ever put on the market. Yet, in spite of the great leverage it develops, it's easy to throw.

The heart of the stand is Bethlehem's well-known sliding-block-and-crank device, which is pictured here. Study the photograph. Visualize yourself lifting the lever. During the course of the throw, the machined steel block slides upward, then downward, describing an arc as it travels. The force of its movement is passed to the spindle, which rotates smoothly and thereby changes the position of the crank.

Only three moving parts. Nothing that can lead to complications. Nothing that ever demands laborious, costly maintenance. Simple, effective, and always powerful . . . that's the 53!

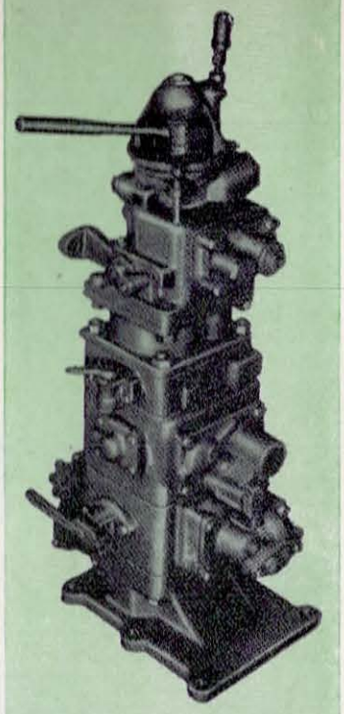
We can highly recommend this husky, durable stand for both main-line and heavy yard duty. For more details, talk with a Bethlehem representative; he will be glad to supply full information.

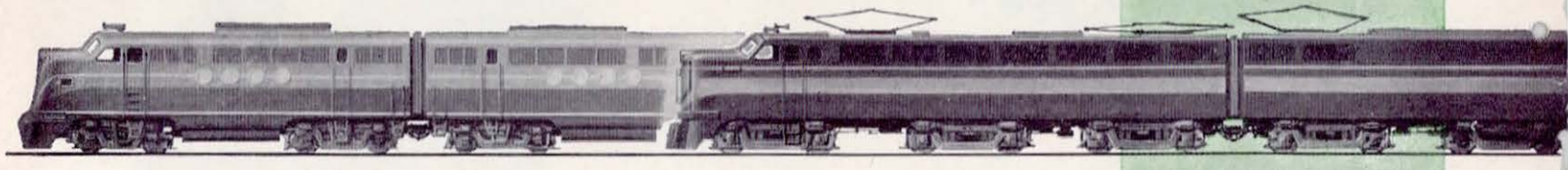
BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

This brake 24-RL can be used for diesel-electric or electric locomotives.



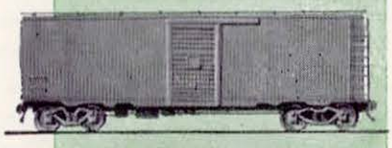


● The Westinghouse 24-RL is a basic locomotive brake unit, to which you can add necessary valve portions to meet operating requirements in accordance with locomotive assignment.

Thus, the basic locomotive equipment provides for such future needs as automatic train control, electropneumatic braking, safety and overspeed control. The 24-RL equipment is thus basic for every locomotive, thereby simplifying the installation.

Remember, too, that the Westinghouse 24-RL brake equipment was designed not only to meet locomotive builders' requirements but also to give you better control of trains in line with present-day needs.

In freight



or passenger service,

high-speed or conventional

Westinghouse Air Brake Company

AIR BRAKE DIVISION
WILMERDING, PA.

Vol. 134, No. 5 February 2, 1953

RAILWAY AGE

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Railway Age Railway Locomotives and Cars Railway Track and Structures
Railway Signaling & Communications Railway Freight Traffic Car Builders' Cyclopedia
Railway Engineering & Maintenance Cyclopedia Locomotive Cyclopedia American Builder
Marine Engineering & Shipping Review Marine Catalog & Directory
Books covering transportation and building

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Abandonment of Second Main Track and installation of "Union" C. T. C. avoided a $1,500,000 expenditure for track renewal

*Here's the Record**

1. 55.56 miles of second main track abandoned.
2. 1.45 miles of siding abandoned.
3. 10.25 miles of second main converted to siding.

And the following additional advantages were effected:

1. Reduced costs of directing train movements.
2. Saved more than one hundred thousand dollars annual maintenance and operating costs.
3. Increased safety of train movements.
4. Provided an annual return:

On Capital Investment	27.3%
On Total Cost	18.8%

* *Factual data supplied upon request.*

UNION SWITCH & SIGNAL

DIVISION OF WESTINGHOUSE AIR BRAKE COMPANY

SWISSVALE PENNSYLVANIA

NEW YORK CHICAGO ST. LOUIS SAN FRANCISCO

WEEK AT A GLANCE

CURRENT RAILWAY STATISTICS

Operating revenues, eleven months
1952 ..... $9,646,357,451
1951 9,489,714,254

Operating expenses, eleven months
1952 ..... $7,341,636,162
1951 7,369,948,055

Taxes, eleven months
1952 ..... $1,169,580,294
1951 1,100,804,634

Net railway operating income, eleven months
1952 ..... $ 964,041,996
1951 832,132,965

Net income, estimated, eleven months
1952 ..... $ 678,000,000
1951 567,000,000

Average price railroad stocks
January 27, 1953 ..... 69.60
January 29, 1952 ..... 57.76

Car loadings, revenue freight
3 weeks, 1953 1,956,796
3 weeks, 1952 2,102,486

Average daily freight car surplus
January 24, 1953 70,732
January 26, 1952 8,092

Average daily freight car shortage
January 24, 1953 1,130
January 26, 1952 4,467

Freight cars delivered
December 1952 7,845
December 1951 8,458

Freight cars on order
January 1, 1953 80,296
January 1, 1952 123,947

Freight cars held for repairs
January 1, 1953 93,027
January 1, 1952 95,425

Average number of railroad employees
Mid-December 1952 1,223,163
Mid-December 1951 1,243,095

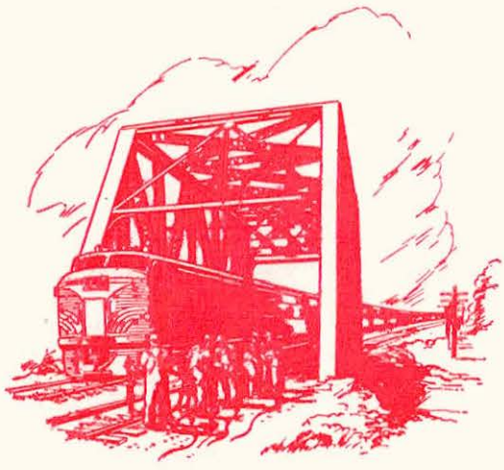
In This Issue . . .

ANOTHER MICROWAVE INSTALLATION—which proves that microwave will operate over water as well as over land—is now in service on the Santa Fe between Beaumont and Galveston. The new system provides 22 communication channels on a direct 68-mile route, and replaces standard telegraph and telephone communication on a circuitous 315-mile route. The installation is described and diagrammed in the article which begins on page 35.

ONE WAY TO IMPROVE PASSENGER SERVICE is that being used by the Pennsylvania, as covered on pages 46 and 47. The system involves regular inspection of principal trains by a special group of supervisors, described as "supercritical travelers," whose job is to spot and secure correction of conditions which are or may be objectionable to passengers.

A NEW SYSTEM to speed up ticket sales and the making of Pullman and coach reservations will be inaugurated shortly by the New York Central and the Pennsylvania at Cleveland and Pittsburgh, respectively. The system, described in the news pages, is an outgrowth of the study of passenger service being made on both roads by Robert Heller & Associates; briefly, it provides for preprinted reservation coupons for each type of accommodation on each train, for a week ahead, so placed as to be quickly available to ticket sellers.

In Washington . . .



THE NEW CONGRESS is only a few weeks old, but the legislative hopper is already pretty well filled with proposed bills of various types. Many of these, of course, relate to transportation and affect the railroads either directly or indirectly. A listing of bills so far introduced, of interest to railroads, with their numbers and their sponsors, is included in the news columns.

A SLIGHTLY MORE OPTIMISTIC OUTLOOK on possibilities for production of new freight cars and for a corresponding increase in the nation's total freight car fleet, was included in the latest monthly review of the "National Transportation Situation" by A.A.R. Car Service Division Chairman Arthur H. Gass (see news pages). At the same time, Mr. Gass points out that the gain in total car ownership in 1952 was disappointingly small.

WEEK AT A GLANCE

SENATOR CHARLES W. TOBEY, Republican of New Hampshire (above), is chairman of the Senate Interstate and Foreign Commerce Committee in the new Republican controlled 83rd Congress. He succeeds Senator Edwin C. Johnson, Democrat, of Colorado, in the chairmanship. The complete membership of both Senate and House Committees was listed on page 53 of last week's Railway Age.

. . . And Elsewhere

BOTH TIME AND COST of handling l.c.l. freight will be materially reduced, if promised results are realized from a survey of Erie freighthouse operations, just begun at Chicago by a nationally known firm of materials handling engineers—Drake, Startzman, Sheahan, Barclay, Inc. The survey, if initially successful, will cover the whole Erie system, including, eventually, New York harbor wharfage and lighterage operations.

TOP AWARDS FOR SUPPLY COMPANY ADVERTISING in behalf of the railroads this year went to the Electro-Motive Division of General Motors Corporation and to the General Electric Company. Presented by the Association of Railroad Advertising Managers at its annual meeting at the Greenbrier, White Sulphur Springs, W. Va., on January 23, the plaque for the best advertising program in the traffic category went to E.M.D., and in the institutional sector to G.E. Honorable mentions went to the Chase National Bank and to the locomotive-building team of American Locomotive Company-G.E.

SHORT-SIGHTED OPPOSITION by railroad employees to introduction of such "new-fangled" devices as Budd RDC cars might be changed if all such employees could read an article by George W. Prance, New Haven engineman, in a recent issue of the Locomotive Engineers Journal. "Commuters," says Mr. Prance, "are ridin' the rails again," thanks in large part to the New Haven's intensive use of Budd cars. "This," he continues, "means more runs for engineers and an outlook for steady employment."

"SPEAK UP, RAILROADER!" is the title of a new 32-page, two-color booklet, 7 in. by 5½ in., just published by the Pennsylvania to give its employees "basic economic facts about the railroad and the industry" behind them. Briefly and attractively, the booklet points out that the PRR is "big, but not rich"; that its financial plight has three chief causes—"over-regulation by government, competition subsidized by government, and inflation-distorted operating costs"; that the railroads are "good citizens" and "eager for public understanding"; but that "nobody is going to tell the railroad story but you."

"'EQUAL RIGHTS' FOR BELT CONVEYORS" — A large committee, including members from 65 Ohio cities, has been formed to urge the state's legislature to give belt conveyors "equal rights in the transportation field." Called the "Committee for Belt Conveyor Legislation," the group is "mute testimony that Ohio business and labor realize the enormous benefits that would come as a result of this new low-cost mode of transportation," said H. B. Stewart, Jr., president of Riverlake Belt Conveyor Lines, Inc., and also president of the Akron, Canton & Youngstown. "Virtually every kind of business from heavy industry to retailing," is represented on the committee, Mr. Stewart said.

DEVELOPMENT OF AIR-AUTO TRAVEL is the objective of a promotional campaign to be undertaken cooperatively by major air lines and the Avis Rent-a-Car System. The campaign is said to allot $200,000 for national magazine advertising, several hundred thousand more for newspaper, radio and television advertising, and $50,000 for miscellaneous promotion plans.

B&O Sign Shop Gears for Reflectorization Program

"SCOTCHLITE" Reflective Sheeting Chosen for broad program of grade crossing protection

HUNDREDS OF WEST VIRGINIA GRADE CROSSINGS are now being guarded for the B & O by crossbucks reflectorized with "SCOTCHLITE" Sheeting. These installations are among the first of a program originated by the road to improve visibility of signs and signals—to protect valuable property and cargo—and to build good public relations in the area it serves.

B & O officials selected "SCOTCHLITE" Sheeting for this important job for *brilliant, lasting, low-cost* signs. And "SCOTCHLITE" Sheeting meets and exceeds all AAR signal section specifications.

That's why this progressive railroad is now erecting *reflectorized* crossbucks at West Virginia crossings—and in 12 other states.

By devoting the full facilities of its Mount Clare sign shop to the mechanized manufacturing of *reflectorized* signs, the B & O achieves maximum production at minimum production cost. And your sign shop can do the same.

For more information on "SCOTCHLITE" Reflective Sheeting, return the coupon below. Your free copy of "Reflect and Protect" shows how other roads solve their sign and signal problems.

200 TIMES BRIGHTER at night than the conventional painted sign mounted above it, this crossbuck made with "SCOTCHLITE" Sheeting is *visible* at half a mile . . . *readable* at a thousand feet! Remains fresh and gleaming for years. Unaffected by rain, sleet and glare ice.

EASY TO MAKE. 12 gauge sheet iron plate forms base of these B & O crossbuck blades. ¾" bead around edges stiffens blades for wind resistance. Three paint coats precede the bonding of "SCOTCHLITE" Sheeting to the metal. Words are stenciled or lettered. Paint is screened and dried.

EASY TO APPLY! This high-speed vacuum applicator requires no special skills or technique. Strong vacuum drives out air under sheeting. Dry steam *permanently* bonds reflective sheeting to metal. Entire bonding operation takes about six minutes! Send coupon below for complete information.

Minnesota Mining & Mfg. Co.
Dept. RA23, St. Paul 6, Minn.

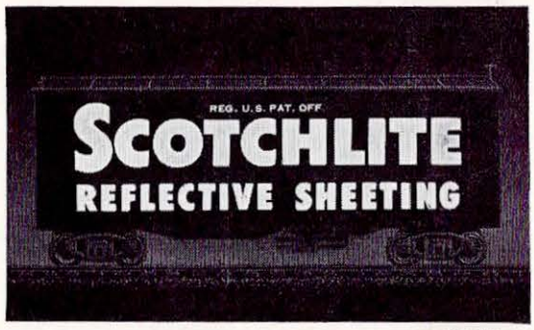
☐ Send free copy of "Reflect and Protect"
☐ Have representative make appointment for call

Name.....

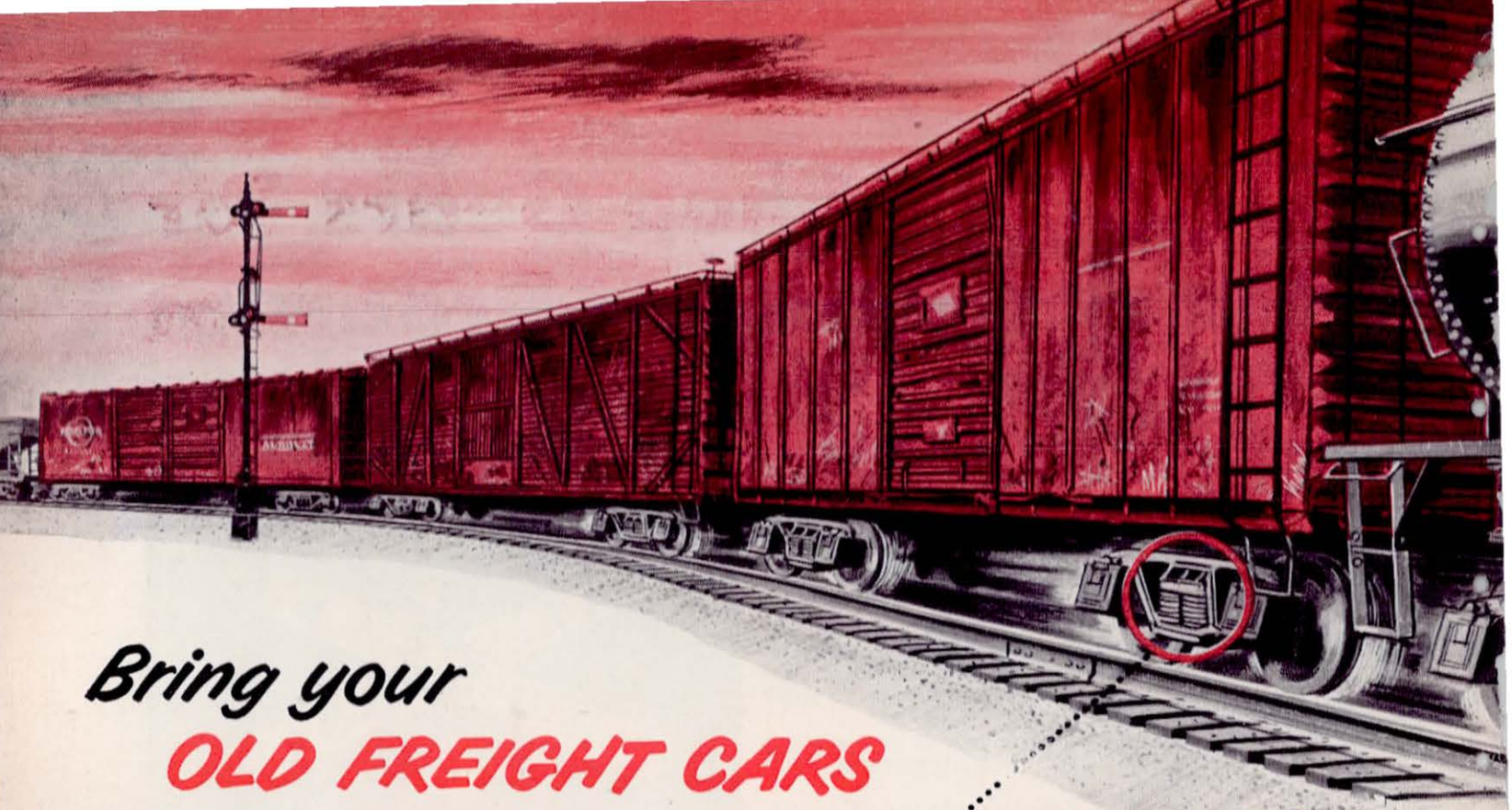
Company.....

Address.....

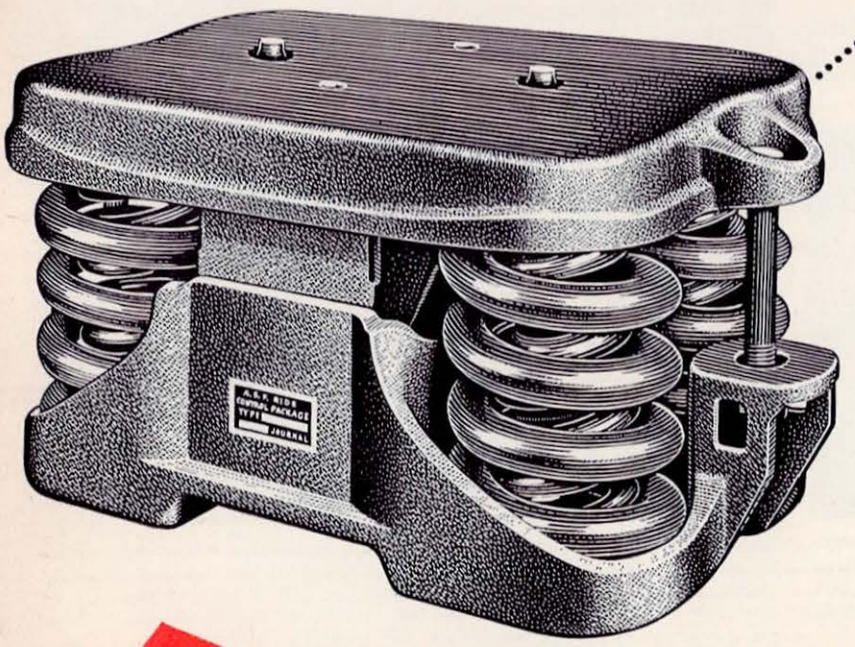
City.....State.....



Made in U.S.A. by Minnesota Mining & Mfg. Co., St. Paul 6, Minn.—also makers of "Scotch" Brand Pressure-sensitive Tapes, "Scotch" Sound Recording Tape, "Underseal" Rubberized Coating, "Safety-Walk" Non-slip Surfacing, "3M" Abrasives, "3M" Adhesives. General Export: 122 E. 42nd St., New York 17, N. Y. In Canada: London, Ont., Can.



Bring your OLD FREIGHT CARS up to MODERN RIDING STANDARDS



And, you can do it quickly and economically with the ASF Ride Control Package! Here's a completely self-contained unit you can install—in a matter of minutes—to make your old freight cars available for unrestricted use.

In place of the old spring group you get long travel springs. Long spring travel, *controlled* with constant friction generated by induction hardened steel shoes, makes the riding qualities of old cars approach those of new ones. Result?

Lading damage claims go down. And, you also reduce the cost of maintaining the truck, the car . . . even the roadbed.

These are days of big new-car backlogs. If you have fast-moving plans for modernization, find out how you can quickly bring your old cars up to modern riding standards. Ask your ASF Representative for the facts on why *a small investment in Ride Control Packages for each car can pay you big returns.*

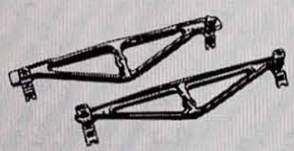
ASF

American Steel Foundries

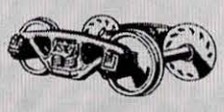
410 North Michigan Ave., Chicago 11, Ill.

Canadian Sales: International Equipment Co., Ltd., Montreal, Quebec

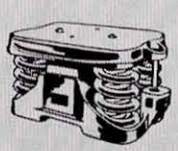
Look for this MINT ⬡ MARK on the running gear you specify



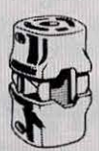
Cast Steel Brake Beams



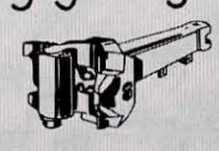
Ride-Control Trucks



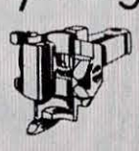
Ride-Control Packages



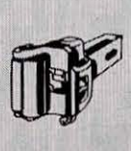
Simplex Snubbers



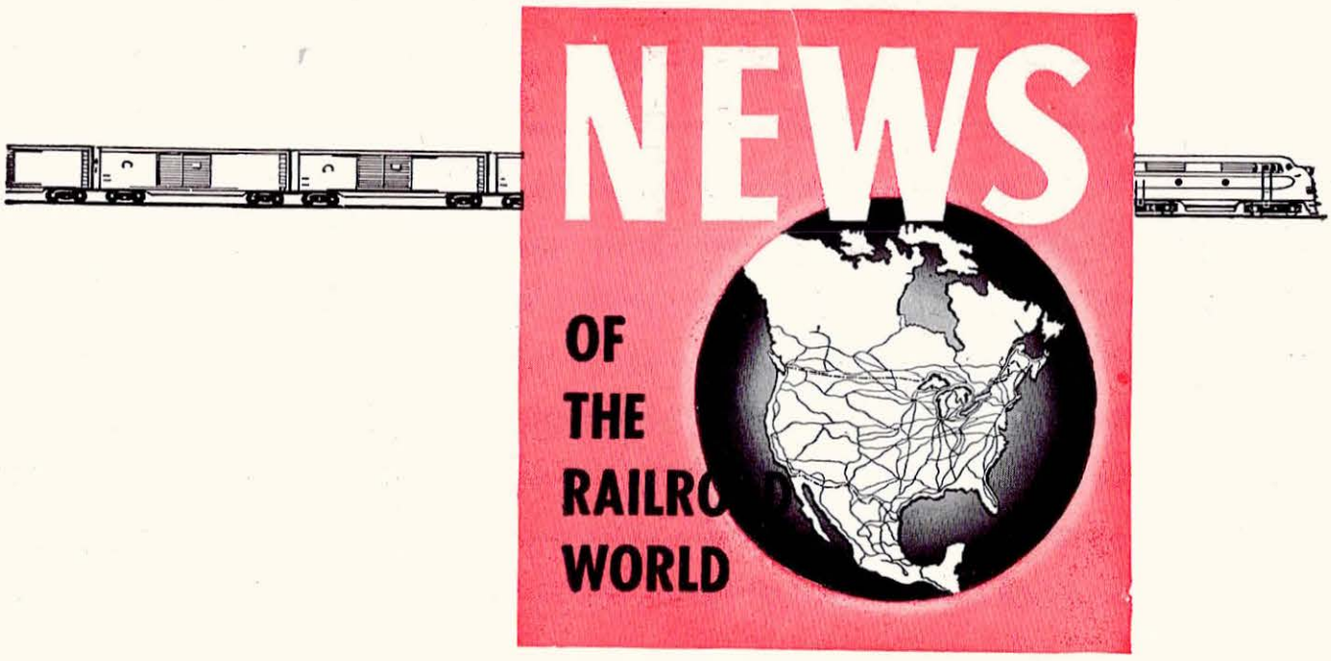
Tightlock Couplers



Type F Couplers



Type E Couplers



1952 Figures Reflect "Relatively Little" Progress on Car Program

Equipment statistics of 1952 "reflect relatively little progress in the program of the railroads to increase the freight car supply."

That is the way the data were interpreted in the latest review of "The National Transportation Situation," issued by Chairman Arthur H. Gass of the Car Service Division of the Association of American Railroads. As Mr. Gass pointed out, last year brought an increase in serviceable ownership of only about 8,000 cars.

This was the net result of a 5,000-car increase in total ownership and a 3,000-car decrease in the bad-order total. The railroad program calls for building the fleet of Class I roads to 1,850,000 cars. That fleet totaled 1,756,700 cars on January 1.

As to production in 1953, Mr. Gass anticipated that a 10,000-car monthly rate "should be possible of achievement" for the year's last quarter. Meanwhile, he expected production for the first six months to be on the basis of 7,500 cars per month, and that of the third quarter to be on a 9,000-car monthly basis.

As to new locomotives, the C.S.D. chairman noted that installations in 1952 tapered off from the previous year's all-time record. He added, however, that only the 1951 and 1950 totals topped that of last year. Summing up, he said that "nearly 10,000 new locomotive units have been placed in service in the past three years, while 13,000 steam locomotives have been retired during the same period."

In his usual review of equipment conditions by types of cars, Mr. Gass reported that the box-car supply is now "more than adequate," and that there are no special car orders or "car service directives" in force affecting distribution of box cars. Generally favorable supply conditions were reported with respect to most other types of cars.

Exceptions were special-type flats, the supply of which "will be severely taxed during the next several months," and covered hoppers, for which "heavy demands" continue. Also, December's gains in the supply of refrigerator cars "have almost disappeared."

Detention reports from railroad agents in 740 cities showed that cars detained beyond the free time of 48 hours averaged 17.73 per cent of those placed in December. That compared with 16.9 per cent in November, and 15.42 per cent in December 1951. Average detention for the year 1952 was 16.56 per cent, compared with 1951's 14.74 per cent.

Wage Increases to RR Employees Far Outrun RR Productivity Increases—Thomas

Wage increases to railroad employees have far outrun increases in railroad productivity, D. R. Thomas, chief counsel for the nation's carriers, said on January 23 in his closing argument at hearings held in New York to pass on demands of 19 unions for "improvement" factor wage hikes. Hearings were conducted by Paul N. Guthrie, professor of economics at the University of North Carolina, who was appointed referee in the case by ex-President Truman.

"The evidence shows," Mr. Thomas said, "that the productivity theory affords no basis whatsoever for any further increase and that no increase is justifiable under any other name." From 1939 to 1952, he added, productivity, as measured by traffic units per hour paid for, went up by 57 per cent, but wages per hour went up by 150 per cent. From the previous boom year 1929 down to 1952, railroad productivity went up 104 per cent while wages per hour jumped 181 per cent.

"Clearly, it's time to let productivity catch up with wages, rather than adding more weight to the wage load. Capital expenditures, rather than increased effort on the part of the employees, have made the gains in productivity possible," he said. The attorney then cited enormous expenditures made by railroads for dieselization of motive power, heavier rails, modern signal systems, elimination of roadway curvature, higher capacity freight cars, and modernized yards.

Mr. Thomas told the referee "you

are not being called upon to raise wages from a substandard level to one which is fair in relation to comparable workers in other industries. The demand, instead, is that wages of railroad workers which are now already far out ahead of manufacturing employees should be further increased."

In October 1952, the latest available date, average straight time hourly earnings of manufacturing industry employees was $1.63, compared with $1.87 for railway employees, or a 24 cent an hour spread in favor of the carriers' workers, the attorney said. "Yet here the railway employees are asking that more earnings be added on top of their present record-breaking excess over other employees." Emphasizing the favored position of railroad employees, Mr. Thomas compared wage increases received by railroad workers in recent years with those granted by such an "outstandingly profitable" industry as General Motors. Since 1948, he said, railroad employees have received wage increases averaging 52.9 cents per hour, compared with 46 cents by General Motors employees.

Mr. Thomas challenged the contention of the unions that the interests of the public should be ignored. He pointed out how repeated general increases in wages to railroad employees had resulted in freight rates being boosted 78.9 per cent since mid-1946 by the Interstate Commerce Commission.

Calling attention to the inability of the industry to take on any additional and unnecessary cost, the attorney said "with years of high peacetime traffic and with gross revenues at record levels, the railroads have been so burdened with increasing expenses that they have been unable to earn anything like a fair return on investment. For the seven postwar years railroads have been able to earn an average rate of return of only 3.6 per cent, compared with much higher earnings of other industries. In 1952, with gross revenues of $10,600,000,000, the highest point in railroad history, the rate of return was only 4.0 per cent."

In 1952, after fully reviewing the railroads' financial and operating situation, Mr. Thomas said, the I.C.C. announced that rates of return earned or prospectively to be earned by railroads are substandard and inadequate.

"Under present circumstances," Mr. Thomas concluded, "the railroad industry can give no warranty that a further adjustment in the wages of its employees will not be used as a basis for requesting rate relief from the commission."

D&RGW Wins Partial Victory Over UP in Ogden Gateway Case

The Denver & Rio Grande Western has won a partial victory over the Union Pacific in the so-called Ogden Gateway Case.

The Interstate Commerce Commission's decision in the case (No. 30297) will require the UP to participate in joint through rates on a selected group of commodities moving over D&RGW-UP routes with interchange at Ogden, Utah, or Salt Lake City. The D&RGW complaint sought to have the commission force the gateway wide open by requiring the UP to participate in joint through rates on all traffic moving that way between "Colorado common points" and points east thereof, and points in the "excluded territory," which embraces points in Utah north of Ogden and in Idaho, Montana, Oregon and Washington.

To the extent that the D&RGW gets the longer hauls it seeks, the UP would be short-hauled. The latter's participation in joint rates on the traffic involved is now limited generally to rates applicable over routes which make Denver, Colo., the point of interchange.

The commission found that through routes and joint rates via Ogden and Salt Lake City are "necessary and desirable in the public interest" on granite and marble monuments, in carloads, from origins in Vermont and Georgia to destinations in the "excluded territory"; and on ordinary livestock, fresh fruits and vegetables, dried beans, frozen poultry, frozen foods, butter and eggs, in carloads, moving eastward from origins in the "excluded territory." The joint rates on such movements must not exceed joint rates maintained on the same commodities moving from and to the same points over present UP routes.

Another finding of the report held that maintenance by the UP of joint rates between points in the Northwest and points on the Bamberger Railroad south of Ogden, while refusing to participate in like rates to and from the same points on the D&RGW, subjects the latter to discrimination in violation of Section 3(4) of the Interstate Commerce Act.

The findings other than the latter, were bottomed on Section 15(4). That authorizes the commission to order establishment of through routes and joint rates (even though participating roads be short-hauled) if it finds them needed to provide "adequate, and more efficient or more economic, transportation." In turning to that section, the commission majority rejected contentions to the effect that through routes via Ogden and Salt Lake City were already in existence; and that only a prescription of joint through rates on the basis applicable over the open UP routes was called for.

This determination was one of the bases for separate expressions which came from Commissioners Arpaia, Lee and Mahaffie. Commissioners Splawn and Cross subscribed to the Mahaffie statement, while another separate expression came from Commissioner Patterson. He would have included lumber and lumber articles among the commodities on which relief was granted. Commissioner Knudson did not participate in disposition of the case.

Commissioner Arpaia's statement dealt only with the question of whether through routes via Ogden and Salt Lake City are now in existence. In his opinion, they are, and "therefore, a finding under . . . Section 15(4) . . . is not required."

In Effect Earlier

Mr Arpaia also recalled that joint rates over the involved routes were in effect during the 1897-1912 period. He added that, when the UP canceled those rates, "no specific cancellation was made of the through routes." Meanwhile, Mr. Arpaia agreed that the joint rates prescribed should be only on the commodities for which relief was included in the majority report.

While they, too, thought that through routes were already in existence, Commissioners Lee and Mahaffie went further, saying that joint rates should have been prescribed on all commodities.

The case had been before the commission more than 3½ years. In November 1950, it received from its chief examiner, Frank E. Mullen, a proposed report recommending that the gateway be opened for all potential traffic (*Railway Age*, November 25, 1950, page 50).

In October 1952, it heard reargument of the case to permit participation by its new members—Commissioners Arpaia and Elliott. Meanwhile, Senator Johnson, Democrat of Colorado, former chairman of the Senate committee on interstate and foreign commerce, issued statements in favor of the Rio Grande position. The UP called the senator's statements to the attention of the commission and was advised that they "can have no part in connection with the commission's consideration of the evidence and argument" (*Railway Age*, November 24, 1952, page 12).

PRR and NYC to Inaugurate New Ticket Sale Facility

A new system to speed up ticket sales and the making of Pullman and coach reservations soon will be inaugurated by the Pennsylvania and the New York Central. The ticket-and-reservation system was developed by Robert Heller & Associates, Cleveland, in collaboration with the NYC and the PRR, which engaged the firm last year for a comprehensive study of passenger services and operation.

The new system provides for a central ticket sales and service bureau manned by counter and telephone sales representatives. Preprinted Pullman and reserved coach space coupons will be arranged under the hands of reservation clerks in special racks by train and by date, with different types of accommodations denoted by coupons of various colors. A board in full view of the public and all sales personnel will show accommodations available on each train for the next week.

If, for example, a traveler wishes to obtain a bedroom on a specific train any time during the week, a glance at the board for that train will show

"Dinner music" was provided on this C&O inauguration special by a Charleston, W. Va., high school band, which paraded from one end of the train to the other.

West Point cadets were fed by the B&O's Dining Car Department in Eckington Yard freight station, converted for the occasion into a mammoth dining hall.

"Pullman City" in Eckington yard. More than 2,156 persons were housed in B&O Pullman cars during the inauguration period. Buses were chartered to take visitors into city.

Some newsreel and television cameramen who set up shop in Union Station at rear of B&O's "National Limited" to record departure from Washington of ex-President and Mrs. Truman.

RRs Planned Well for Inauguration Traffic

A record-breaking parade of special trains from all parts of the country, totaling over 600 coaches, parlor, sleeping and dining cars, pulled into Washington, D. C., for the inauguration of President Eisenhower on January 20. "Pullman Cities" were established in outlying yards in the vicinity of Washington to provide parking space for several hundred railroad cars used as living quarters for approximately 10,000 persons. To furnish adequate heat and hot water, about 34 steam locomotives were located at the different yards. Electricity was supplied by gasoline-driven generators and sanitation arrangements were worked out in cooperation with the city's Health Department.

Other services available to railroad passengers living in the "Pullman Cities" were 24-hour protection by railroad police; telephone booths located near sidings; and availability of railroad passenger agents to provide information. Mechanics were on duty to handle regular maintenance of equipment and make emergency repairs, as were railroad operating forces to inspect cars and make sure they were ready for their return trips. Arrangements were made by the Pullman Company to have porters in constant attendance on parked sleeping cars. Each yard was on a self-sustaining basis with soap, towels, linen and other accessories being supplied from a central commissary.

More than 87,000 meals were served in Pennsylvania dining cars bringing visitors to Washington. Within the five-day period of inauguration travel dining car chefs prepared 30,400 lb. of meat, poultry and fish. Officers of the PRR's Dining Car Department assigned 475 employees to 63 dining, lounge and bar cars in regularly scheduled and special trains carrying inauguration-bound travelers.

The Baltimore & Ohio operated 50 special trains into and out of Washington, and all B&O regular trains serving the nation's capital carried extra sleeping cars and coaches.

The entire cadet corps of the United States Military Academy, 2,400 officers and men, participated in the inaugural parade. They entrained at the West Point station of the New York Central's West Shore River division. Passengers aboard Chesapeake & Ohio trains en route to the inauguration received copies of the oath of office taken by President Eisenhower. The certificates, suitable for framing, contained a sketch of the President.

whether such an accommodation is available. If it is not, the board will show immediately what other accommodations might be obtained. Whatever accommodation is selected, the proper space coupon is readily at hand.

Under the new system the entire transaction with the passenger of reserving space and selling the ticket is materially accelerated; and is accomplished at one place with all information immediately available, eliminating present bottlenecks in communicating by phone or otherwise with a separate reservation bureau.

Quick service also is accomplished by elimination of time-consuming writing in of tickets by clerks, showing destination and other data, and introduction for the first time in railroad history of space coupons already printed and ready at the bureau, as well as use of simplified railroad tickets immediately available. Each space coupon will show type and designation of accommodation, car number, train, date, and points of origin and destination. These, together with the simplified railroad tickets, will be printed on special automatic machines at the bureau.

To further speed routine transactions, the new system provides for a separate sales and service lounge to which are directed persons wishing to make reservations and purchase tickets for long trips over more than one railroad, and others whose requirements demand special handling. Reservations may be made by telephone to the central ticket sales and service bureau, and tickets picked up later. When space is reserved by phone, a hood is placed over the space coupon reserved, showing it is to be held until the time specified to the patron as to when it should be picked up.

The new facility, to serve as a "pilot" installation, is being constructed on the NYC at the Cleveland Union Terminal, where it is expected to be in operation about April 1, and in the PRR's Pennsylvania Station in Pittsburgh, where it is scheduled to go into operation about March 15.

Should Diesel Crankcase Oils Be Mixed?

Heavy-duty lubricating oils used in diesel engines should not be mixed, because non-mixing promotes better engine performance, according to W. K. Simpson, fuel and lubrication engineer of the Electro-Motive Division of General Motors Corporation.

Speaking before the Southern and Southwestern Railway Club at Atlanta, Ga., on January 15, Mr. Simpson said he would encourage the thinking that more money should be spent on lubricating oils, because an analysis of diesel operating costs shows that 65 per cent are chargeable to fuel oil and only 2.6 per cent to lubricating oils. Not only does non-mixing produce better engine performance, he said, but it also promotes better relationships between railroads and oil companies—which is particularly important since the amount of fuel oil required when railroads are fully dieselized will be about 225,000 to 250,000 barrels per day.

Before presenting any conclusions with respect to the mixing of lubricating oils, Mr. Simpson reviewed arguments for and against mixing. The arguments against mixing are:

(1) Non-mixing simplifies handling;

(2) Mixing usually results in dirty oil conditions;

(3) Mixing upsets balance of additive combinations;

(4) Mixing puts the brakes on research because it provides no incentive to alter composition of any oil that is in a blend;

(5) Oil companies will not guarantee mixed oils; and

(6) Oil companies have no pride in performance of mixed oils.

Mr. Simpson listed the following circumstances under which mixing of heavy-duty oils will be satisfactory:

(1) The oils blended are prone to be compatible;

(2) More favorable results can be obtained in engines operated in lower horsepower ratings—switching, light passenger and light freight service;

(3) Pre-blending of oils more satisfactory but also more complicated and undoubtedly of only academic interest; and

(4) Accidental or small percentage mixing can probably be accomplished without harmful effect.

The compatibility of oils is not easy to determine, Mr. Simpson said; he

THE NEW HAVEN'S new metropolitan freight distribution center (above), at 132nd street and Willow avenue in the Bronx, N. Y., opened on January 21. The center, with an area of 286,000 sq. ft., contains about 3,500,000 cubic feet of storage space and cost $2,500,000, including land. Frederic C. Dumaine, New Haven president, said at opening-day ceremonies that close cooperation between P. Kretzer & Son, Flushing, N. Y., industrial builders, and the road's engineering and operating departments, had made it possible to complete the center in less than nine months. The building is served by side tracks capable of accommodating 20 freight cars. Tenancy is divided between the Mercer Storage Co.—which has 160,000 sq. ft. for handling automobiles and appliances—and the Eastern Transportation Co., with 100,000 sq. ft. for electrical appliances. Balance of space is for the New Haven.

told of two oil companies which came out with new oils not compatible with their old oils. Also, different oils have an effect on the nature of engine deposits and a change in these deposits usually has an adverse effect on engine performance. He said it is difficult to control mixing of oils on large railroads operating trackage in many directions, but rather easy to control it on straight line railroads.

Eight major oil companies are conducting research on E.-M.D. locomotives, the goal being a more durable engine that will run longer with less wear, according to Mr. Simpson. Remarkable progress has already been made, he said, and better performance will be obtained in future with better lubricating oils permitting possible utilization of lower priced fuel.

Mr. Simpson was assisted in the discussion of the meeting's topic, "Mixing of Crankcase Oils," by a panel consisting of A. C. Spencer, lubrication engineer, Esso Standard Oil Company; R. W. Van Sant, chief of fuel and lubricants engineering, Gulf Oil Corporation; T. Renison, eastern sales representative, Shell Oil Company, and E. G. Mittlestaedt, eastern manager, railroad sales, Sinclair Refining Company.

The oil company representatives were in general agreement with Mr. Simpson and Mr. Van Sant, who spoke of the complex structure of lubricating oils both in respect to base stock and additives. He could not see how the new synthetic additives under development could be held in balance if variables introduced by mixing were added.

Mr. Van Sant also outlined the fuel oil situation. Because of the greater demand for gasoline at one end of the cracking process of each barrel of crude oil, and for residuals and Bunker C at the other end, the percentage of diesel fuel oil obtained from each barrel is less. Supply has been maintained only by increasing refinery facilities and processing more barrels of crude oil. There is an added squeeze in the diesel fuel oil range due to the increasing demand for domestic heating oil and for jet engine fuel. He said these factors would be an influence working against the lowering of the price of diesel fuel oil.

In general the railroads represented at this meeting do not mix crankcase oils. Even the larger systems try to segregate operation of units as a general policy but do get some mixing of oils. Mr. Simpson said that mixing of oils would work well if any railroad established a program for mixing oils with the benefits going to the engine builders, who would probably sell twice as many replacement parts.

Freight Car Loadings

Loadings of revenue freight in the week ended January 24 totaled 697,641 cars, the Association of American Railroads announced on January 29. This was a decrease of 7,838 cars, or 1.1 per cent, compared with the previous week; a decrease of 30,374 cars, or 4.2 per cent, compared with the corresponding week last year; and a decrease of 86,525 cars, or 11 per cent, compared with the equivalent 1951 week.

Loadings of revenue freight for the week ended January 17 totaled 705,479 cars; the summary for that week, compiled by the Car Service Division, A.A.R., follows:

REVENUE FREIGHT CAR LOADINGS
For the week ended Saturday, January 17

District	1952	1951	1950
Eastern	124,781	131,806	143,743
Allegheny	143,937	154,287	160,827
Pocahontas	51,792	62,730	61,111
Southern	130,110	140,145	140,421
Northwestern	77,918	79,655	85,126
Central Western	115,940	114,544	124,130
Southwestern	61,001	64,493	64,392
Total Western Districts	254,859	258,692	273,648
Total All Roads	705,479	747,660	779,750
Commodities:			
Grain and grain products	46,168	52,453	54,590
Livestock	9,178	8,720	9,568
Coal	135,136	163,576	158,766
Coke	15,015	16,625	17,003
Forest products	45,571	45,221	48,823
Ore	19,546	19,358	18,404
Merchandise l.c.l.	66,044	70,317	80,941
Miscellaneous	368,821	371,390	391,655
January 17	705,479	747,660	779,750
January 10	688,232	744,710	783,015
January 3	563,085	610,116	662,427
Cumulative total, 3 weeks	1,956,796	2,102,486	2,225,192

In Canada.—Carloadings for the seven-day period ended January 14 totaled 72,089 cars, compared with 55,832 cars for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada:		
January 14, 1953	72,089	29,095
January 14, 1952	77,785	34,273
Cumulative Totals		
January 14, 1953	127,954	53,383
January 14, 1952	139,254	63,977

Senator Would Hold Up Parcel Post Rate Hike

Senator Carlson, Republican of Kansas, who is chairman of the Senate Committee on Post Office and Civil Service, hopes the Interstate Commerce Commission will defer action on the proposed increase in parcel post rates.

The Senator wants commission action held up until Congress has had an opportunity to consider a bill proposing to repeal legislation requiring the Postmaster General to keep parcel-post rates on at least a cost-of-service basis. The proposed repealer, S.586, was introduced January 23 by Mr. Carlson for himself and Senator Johnston, Democrat of South Carolina, the ranking minority member of the Committee on Post Office and Civil Service.

The proposal before the commission would raise parcel post rates to the point where they would yield from 33 to 35 per cent more revenue. It was filed by former Postmaster General Donaldson just before he went out of office, but Mr. Donaldson advised the commission some six months earlier of his plans to seek the advance (*Railway Age*, July 14, 1952, page 96). The latest general increase in parcel-post rates became effective October 1, 1951.

Senator Carlson's expression of hope that commission action would be deferred was embodied in a statement he made to the Senate as he introduced his bill. "In my judgment," he said, "it is unfair for the I.C.C. to establish rates on fourth-class mail and leave with Congress the responsibility for setting rates on other classes of mail. I believe Congress should have the responsibility of setting all postal rates. . . ."

Senator Carlson also announced that he and Senator Johnson planned a resolution authorizing his committee to study "the business methods, operations, rates, and charges of the postal service."

Providence, R. I., Gets More L.C.L. Service

L.c.l. freight from—or destined to—many eastern and southeastern Massachusetts towns now is being carried to and from Providence, R.I., by the New York, New Haven & Hartford's substituted truck service. Thus, shipments originating in or destined to Cape Cod and the area surrounding Brockton, Mass., and Plymouth will reach destinations at least 24 hours sooner than they did before substituted trucking was inaugurated in that territory.

The increased concentration of l.c.l. at Providence will enable agency forces there, where a "Griffin Plan" type operation is in effect, to make more through cars to destination or distant transfers. It is expected that this will help to improve further outbound l.c.l. service not only for the Massachusetts communities but for shippers at Providence and nearby towns. The Brockton, Plymouth and Cape Cod Chambers of Commerce have issued routing guides, in which are set out what are said to be the best service routes.

Heileman, Splawn Address A.U.'s Traffic Institute

Major General Frank A. Heileman, the Army's chief of transportation, and Interstate Commerce Commissioner Walter M. W. Splawn were speakers at dinner sessions of the Fifth Institute of Industrial Transportation and Traffic Management, which was held last month at the American University, Washington, D. C.

General Heileman spoke at a January 22 meeting, discussing "National Defense Transportation." He stressed the need for coordinating arrangements to insure the most efficient use of all transport facilities in time of emergency.

Dr. Splawn spoke at a January 26 meeting, presenting "Some Notes on Recent Trends in Transportation." While he noted that various transport studies are under way, he thinks they

all point up "a trend toward caution —caution in making changes that might be too radical, too sudden, or too far-reaching."

Presiding at both sessions was Dr. L. M. Homberger, director of the institute and professor of transportation at the university.

Canadian Railroads Prepare for Strike

As this issue of *Railway Age* went to press, Canadian railways were making preparations for a possible strike of some 25,000 of their operating employees who are represented by the Brotherhood of Railroad Trainmen. If the strike occurs, it will be brought about by disagreement on wage negotiations, in which the railroads have offered a 12 per cent increase in return for some working rules changes, while the brotherhood is demanding a 35 per cent increase, an escalator clause and a 40-hour week for yard employees.

J. A. Brass, general secretary of the Railway Association of Canada "informed the public" that "all passenger, freight and express services" on the Canadian National, the Canadian Pacific and the Napierville Junction would be "brought to a standstill if the strike takes place." He added that the association would keep shippers and the public informed by advance notice of embargoes on perishable and other traffic.

N. R. Crump and S. F. Dingle, vice-presidents, respectively, of the CPR and CNR, issued the following statement on January 26:

"For five hours today we met with the negotiating committee of the Brotherhood of Railroad Trainmen in an endeavor to reach a settlement with them.

"We have explored, without prejudice, all of the avenues of discussion open to us and we presented what we felt were fair terms in relation to what other scheduled employees have accepted. These suggestions were refused.

"Towards the close of the meeting, we offered to submit the matter to a referee whose decision would be binding on both sides. This they also refused and the meeting ended.

"We must now prepare for a strike that will tie up the railways completely on next Monday morning, February 2, and we will start, at once, to issue the necessary freight and express embargo notices and warnings to passengers."

STRIKE MAY BE AVERTED

Special to Railway Age

While the strike threat is "not entirely removed" the situation has been "improved by possible resumption of talks between the railways and spokesmen for the B.R.T., according to a statement made to the Canadian Parliament by Dominion Labor Minister M. F. Gregg just prior to *Railway Age* press time. The Canadian cabinet had held two meetings on the question, after which the labor minister told the railroads and the union "to make another try at settlement." Unless some last minute settlement is reached in this way, the same situation may develop as in the late summer of 1950, when Canadian rail services were halted by a nine-day strike of non-operating employees. That strike was ended by a Parliamentary order to the men to go back to work, accompanied by Parliamentary action to provide for settlement of the dispute which had caused the strike.

Grievance Strike Hits Chicago Great Western

Five operating unions called a strike against the Chicago Great Western at 6 a.m. on Sunday, January 25, in an effort to force a favorable settlement of a large backlog of unsettled grievances. The walkout halted most operations.

The railroad states that the strike involves "several hundred workers," while a union spokesman is quoted as setting the number at "over 1,000." The strikers are members of the Order of Railway Conductors; the Brotherhoods of Locomotive Engineers, Locomotive Firemen & Enginemen, and Railroad Trainmen; and the Switchmen's Union of North America.

The CGW reports that on December 18, 1952, it offered to join the brotherhoods in establishing special boards of adjustment to expedite the handling of nearly 600 unsettled grievances—a practice frequently followed by other railroads. "This offer was rejected by the brotherhoods," the CGW says, "and although the offer was renewed and is still open, they have refused to join in establishing such boards."

Warned of the impending strike by newspaper reports of union activity, the CGW cleared the line of perishables and issued embargos against carload and l.c.l. traffic the day before the strike began.

The Federal Mediation Board was participating in talks between the railroad and the unions, which were continuing at press time for this issue.

Long Island Speeds Car Reconstruction Program

An accelerated program of passenger car reconstruction and maintenance has been begun by the Long Island. Completion of installation of automatic speed control equipment on 345 electric cars in the road's 6,000,000 safety program has made available a number of tracks in the Morris Park, N.Y., shops for the stepped-up repair and maintenance schedule.

Starting in January, 17 cars a month will be completely overhauled—stripped to bare shells and rebuilt, reupholstered and redecorated in the new customer-selected interior color scheme of blue and rose. The LI has 1,315 cars, about one-thirtieth of all coaches, passenger-baggage combination cars and baggage and mail cars in use in the entire country. Two overhauled cars each month will be equipped with new seats of the 3-2 variety, to increase the number of seats available in rush-hour trains.

The car rehabilitation program was attacked as "totally inadequate to meet the urgent need for better service," in a January 29 statement by the Long Island Transit Authority. "What is really needed," the authority said, "is a major car purchase and rehabilitation program." The authority has indicated that it favors the use for such a program of funds to be received by the railroad from sale of its Rockaway branch to New York City; and has notified the Interstate Commerce Commission that it will "vigorously oppose" any attempt to use such funds for payment of back taxes owed by the railroad to the city of New York.

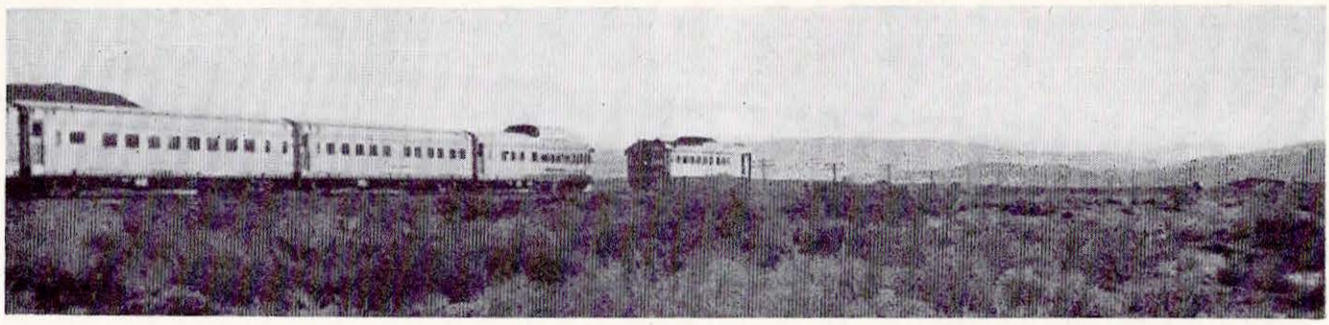
Yale & Towne-C.I.T. To Lease Equipment

Users of materials handling equipment now can lease fork trucks, etc., rather than buy them, according to a recent joint announcement by the Philadelphia division of Yale & Towne Manufacturing Co. and C.I.T. Corporation, the industrial financing subsidiary of C.I.T. Financial Corporation. Under the plan, field sales representatives of Yale will negotiate leasing agreements with potential users. C.I.T. then will purchase the equipment from Yale and lease it to the user for an agreed period of time. A corollary plan also is available for users who wish to purchase Yale equipment on installment terms.

"Clear Iron"

A 14-minute moving picture entitled "Clear Iron" depicting recent developments in railway passenger-train operation, has been produced by Marathon TV Newsreel, 125 East Fiftieth street, New York 22, with the cooperation of the Budd Company. The presentation comprises photography of passenger-train operation over a large part of continental United States. It includes many of the country's diesel-hauled streamliners as well as trains of Budd-built RDC self-propelled rail cars.

The photography extends from Cape Cod, Mass., to the California coast. Included in it are sequences illustrating operations in the building of passenger cars in the Budd Red Lion plant, at Philadelphia, which range from the draw bench, on which various structural sections are formed from stainless-steel sheet, to finished passenger cars ready for delivery. Train operations are shown on the New York, New Haven & Hartford, the New York Central, the Pennsylvania-Reading Seashore Lines, the Baltimore & Ohio, the Chicago & North Western, the Atchison, Topeka & Santa Fe, and the



On the Western Pacific near the California-Nevada line. The westbound "California Zephyr" has just met the eastbound RDC motor train.

Western Pacific. The picture is an inspiring documentary depicting modern railway passenger transportation service.

The picture is free from commercialism. It has achieved wide acceptance on television and is already booked in over 30 moving picture theaters in New England alone. It has been shown at the Grand Central Theater and the Translux Theater in New York City, and has been booked by more than 80 individual television stations in 56 cities, one 17-station network and two five-station networks for appearances ranging from January 14 to well into March.

Railroad groups and individuals who wish to procure prints of the film should contact Marathon TV Newsreel.

Bills in Congress

Bills introduced in the new Congress since it convened on January 3 have included many which propose transport legislation. Generally, however, they embody no new legislative proposals, being revivals of proposals which were before previous Congresses but failed of final enactment.

Bills of interest to the railroads are listed below, together with their sponsors.

Introduced in Senate

S.8, to create an independent air safety board (McCarran, Nev.).

S.9, to amend Civil Aeronautics Act to provide for regulation of non-certificated air carriers and contract air carriers (McCarran, Nev.).

S.216, to set aside proceeds of manufacturers' excise tax on automobiles, tires and tubes, gasoline and lubricating oil for purposes of the Federal Aid Road Act (Magnuson, Wash.; Kilgore, W. Va.).

S.275, to further define the National Transportation Policy, i.e., to add to the statement of policy an anti-racketeering amendment stipulating that Congress intends that the transport industry shall be kept free of "terrorism, extortion, racketeering, or similar unlawful or unethical business tactics" (Hunt, Wyo.).

S.281, to give the Interstate Commerce Commission authority to order discontinuance of intrastate railroad services found unduly burdensome to interstate commerce (Tobey, N. H., by request).

S.283, to provide a transcontinental superhighway with alternate sections (Kilgore, W. Va.).

S.419, to provide for refund of taxes deducted pursuant to the Railroad Retirement Act from wages of Mexicans employed on railroads of the United States under the April 29, 1943, agreement between U.S. and Mexico (Chavez, N. M.).

S.497, to provide for construction of a highway traversing the Mississippi valley (Hennings, Mo.).

S.539, to authorize the I.C.C. to make mandatory installation of "certain railroad communication systems" (Tobey, N. H.).

S.586, to repeal laws authorizing the Postmaster General, with approval of the I.C.C., to revise parcel post rates (Carlson, Kan.; Johnston, S. C.).

S.589, to create the St. Lawrence Seaway Development Corporation to construct part of the proposed St. Lawrence seaway and to consummate construction and operating arrangements with the St. Lawrence Seaway Authority of Canada (Wiley and McCarthy, Wis.; Taft, Ohio; Green and Pastore, R. I.; Aiken, Vt.; Murray, Mont.; Chavez, N. M.; Humphrey, Minn.; Douglas, Ill.; Ferguson and Potter, Mich.; Young and Langer, N. D.; Lehman, N. Y.; Tobey, N. H.; Hill, Ala.).

Introduced in House

H.R.7, to provide for a system of cross-country superhighways (Dingell, Mich.).

H.R.74, to amend the Civil Aeronautics Act to authorize construction of heliports on or near government buildings (Keogh, N. Y.).

H.R.91, to repeal the tax on transportation of persons (Keogh, N. Y.).

H.R.92, to reduce the rate of tax on transportation of property (Keogh, N. Y.).

H.R.122, to liberalize benefit provisions of the Railroad Retirement Act (Dorn, S. C.).

H.R.131, to provide for separation of subsidy from air-mail pay (Heselton, Mass.).

H.R.149, to liberalize benefit provisions of the Railroad Retirement Act (Martin, Iowa).

H.R.152, to create the Interoceanic Canals Commission (Martin, Iowa).

H.R.170, to prohibit discrimination in employment (Powell, N. Y.).

H.R.203, to liberalize benefit provisions of the Railroad Retirement Act (Wickersham, Okla.).

H.R.239, H.R.240, and H.R.243, to liberalize benefit provisions of the Railroad Retirement Act (Cunningham, Iowa).

H.R.269, to appropriate funds for construction of the Tennessee-Tombigbee waterway (Elliott, Ala.).

H.R.287, to provide for separation of subsidy from air-mail pay (Hoffman, Mich.).

H.R.356, to amend the Railroad Retirement Act (Van Zandt, Pa.).

H.R.373, to provide for construction of a highway traversing the Mississippi valley (Bishop, Ill.).

H.R.528, to liberalize benefit provisions of the Railroad Retirement Act (O'Brien, N. Y.).

H.R.532, to establish a federal traffic bureau (O'Hara, Minn.).

H.R.533, to repeal Section 5a of the Interstate Commerce Act, which provides exemptions from the anti-trust laws for carriers making rate-procedures agreements approved by the I.C.C. (O'Hara, Minn.).

H.R.534, to provide that standard time shall be the measure of time for all purposes (O'Hara, Minn.).

H.R.538, to increase the I.C.C.'s powers over car service, including an extension of the commission's authority to the fixing of equipment rentals for the purpose of encouraging expeditious movements (O'Hara, Minn.).

H.R.553, to require that one member of the I.C.C. be from the New England states (Philbin, Mass.).

H.R.563, to amend the Interstate Commerce Act to prohibit segregation of passengers on account of race or color (Powell, N. Y.).

H.R.594, to liberalize benefit provisions of the Railroad Retirement Act (St. George, N. Y.).

H.R.618, to amend the Inland Waterways Corporation Act (Smith, Miss.).

H.R.647, to prohibit discrimination in employment (Yorty, Cal.).

H.R.1006, to prohibit discrimination in employment (Dollinger, N. Y.).

H.R.1013, to amend the Interstate Commerce Act to prohibit segregation of passengers on account of race or color (Dollinger, N. Y.).

H.R. 1032, to establish a National Superhighway Commission to provide for plans and surveys for construction of a national superhighway system (Hand, N. J.).

H.R.1250, to provide for relief against discrimination in interstate transportation (Dawson, Ill.).

H.R.1378, to liberalize benefit provisions of the Railroad Retirement Act (Cretella, Conn.).

H.R.1419, to provide that standard time shall be the measure of time for all purposes and to authorize Congress to establish daylight saving time for any year by concurrent resolution (Staggers, W. Va.).

H.R.1420, to provide a system of transcontinental superhighways (Staggers, W. Va.).

H.R.1544, to liberalize benefit provisions of the Railroad Retirement Act (Fino, N. Y.).

H.R.1567, to provide for construction of a highway traversing the Mississippi valley (Smith, Miss.).

H.R.1614, to provide a transcontinental superhighway with alternate sections (Wilson, Cal.).

H.R.1736, H.R.1737, and H.R.1738, to liberalize benefit provisions of the Railroad Retirement Act (Van Zandt, Pa.).

H.R.1799 and H.R.1807, to provide for construction of a highway traversing the Mississippi valley (Anderson, Minn.; Chiperfield, Ill., respectively).

H.R.1821, to direct the I.C.C. to require that freight cars, and other unlighted railroad cars, be so equipped that they can be readily seen at night (Gross, Iowa).

H.R.1924, to amend the Civil Aeronautics Act to authorize construction of heliports on or near government buildings (Hinshaw, Cal.).

H.R.1925, "to aid in meeting defense mobilization requirements by providing for training or retraining of civilian aviation personnel" (Hinshaw, Cal.).

H.R.1998, to require railroads to install and maintain communication systems (Price, Ill.).

H.R.1999, to amend the Railroad Retirement Act (Rees, Kan.).

H.J.Res.3, to approve the United States-Canada agreement for construction of the proposed St. Lawrence seaway (Dingell, Mich.).

H.J.Res.4, to authorize a group of states to enter a St. Lawrence seaway agreement with Canada (Dingell, Mich.).

H.J.Res.96, to establish a Federal Motor Vehicle Commission for the purpose of making uniform motor-vehicle laws (Taylor, N. Y.).

H.J.Res.98, to approve the United States-Canada agreement for construction of the proposed St. Lawrence seaway (Machrowicz, Mich.).

H.J.Res.104, to create the St. Lawrence Seaway Development Corporation to construct part of the proposed St. Lawrence seaway, and to consummate construction and operating arrangements with the St. Lawrence Seaway Authority of Canada (Dondero, Mich.).

I.C.C. Holds Hearing On "Federal" Accident

Extended testimony before the Interstate Commerce Commission and the Senate Interstate Committee failed to point up conclusively just what caused the January 15 train accident in Washington, D.C.

Two days of testimony before the Senate committee, and four days more before Commissioner Patterson of the I.C.C., produced reams of testimony from train crews, car inspectors and air brake specialists. Much of the testimony turned to the controversial angle cock at the rear of the third car.

(Continued on page 48)

INSPECTOR REJECTS "TAMPERING" THEORY

An Interstate Commerce Commission safety inspector rejected the "tampering" theory as an explanation for the closed angle cock on the "Federal."

The inspector, H. R. Longhurst, testified at the January 29 session of the commission hearing:

"It appears," he said, "that during the upward movements of the Titelock coupler, to which this angle cock was secured by means of a bracket, while this car was being hauled in train 173 on January 15, 1953, the top position of the angle cock handle was striking the bottom of the center end sill frequently and with sufficient force to result in the complete closing of the air passage through the valve prior to the engineer's attempt to reduce speed . . . The closing of that angle cock would result in complete loss of control of the power brakes of the rear 13 cars in the train."

C. D. Stewart, vice-president, Westinghouse Air Brake Company, testified there was a "possibility" that a "very odd series of circumstances" could move the handle of an angle cock in the manner described by Mr. Longhurst.

Meanwhile, B. R. Jones, superintendent of car maintenance on the New York, New Haven & Hartford, had testified that the New Haven has 207 passenger-train cars on which the angle cock is in "approximately the same location" as the one on the third car of the "Federal."

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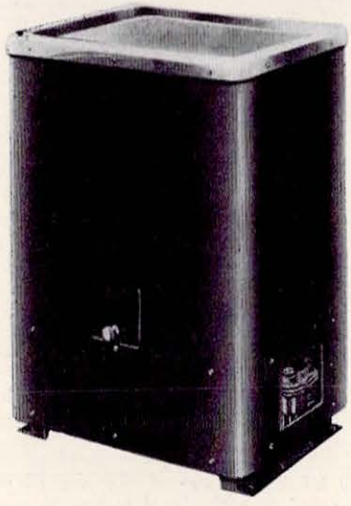

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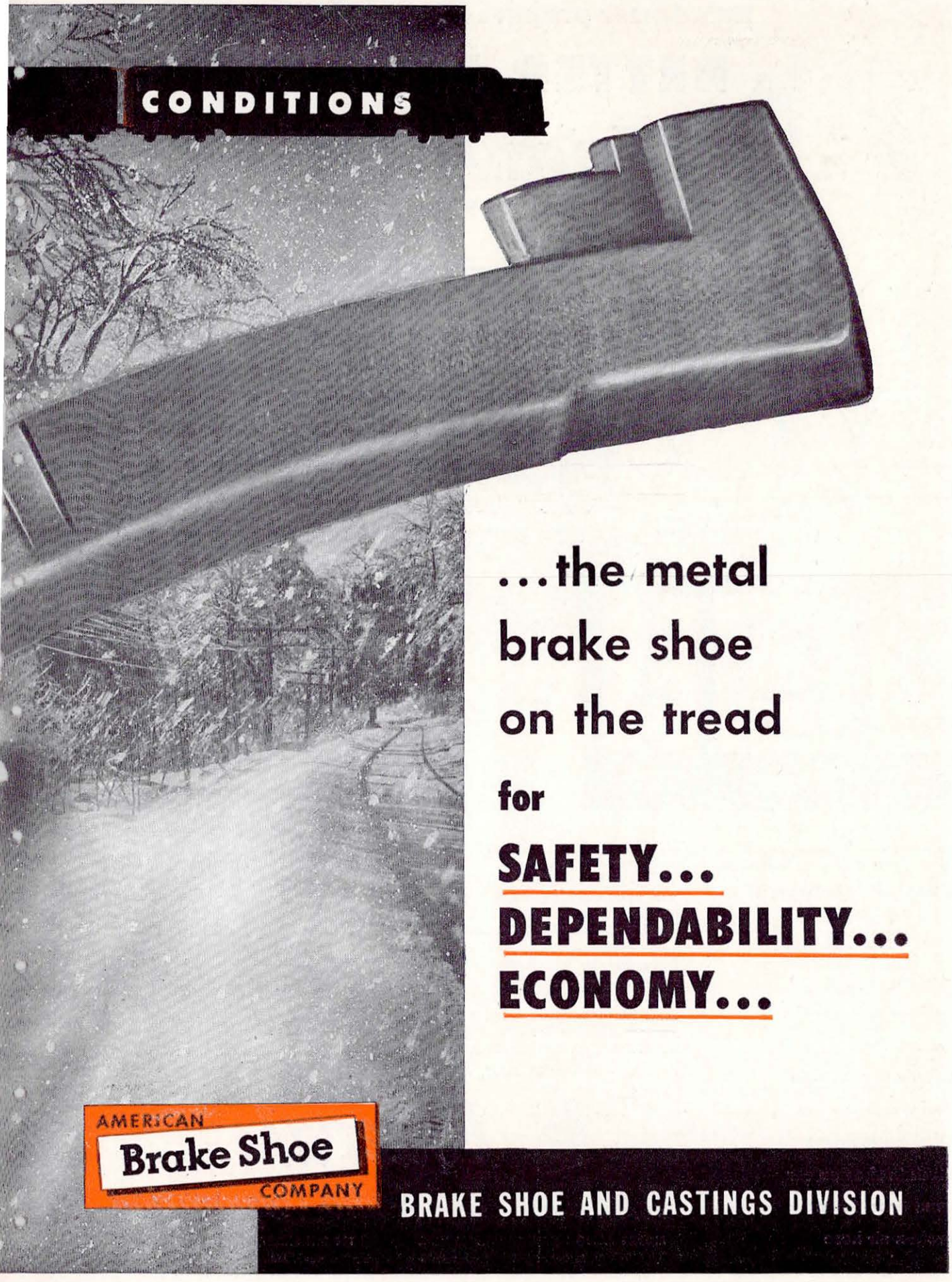

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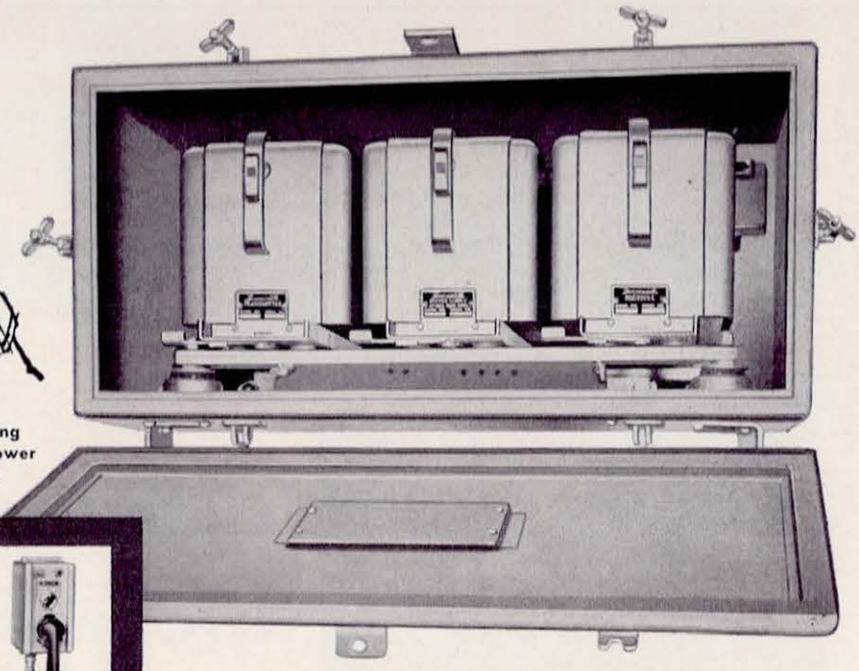

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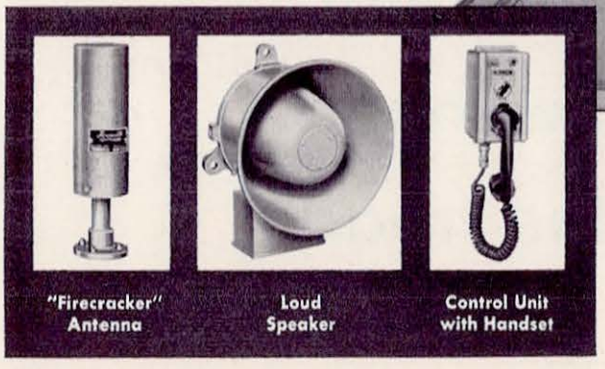

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Today, Federal-Farnsworth yard, wayside, locomotive and caboose units are standard equipment on major railroads here and abroad . . . serving high-speed main lines, heavy freight routes and other operations . . . amply demonstrating that the system provides *flexibility* to meet any requirement.

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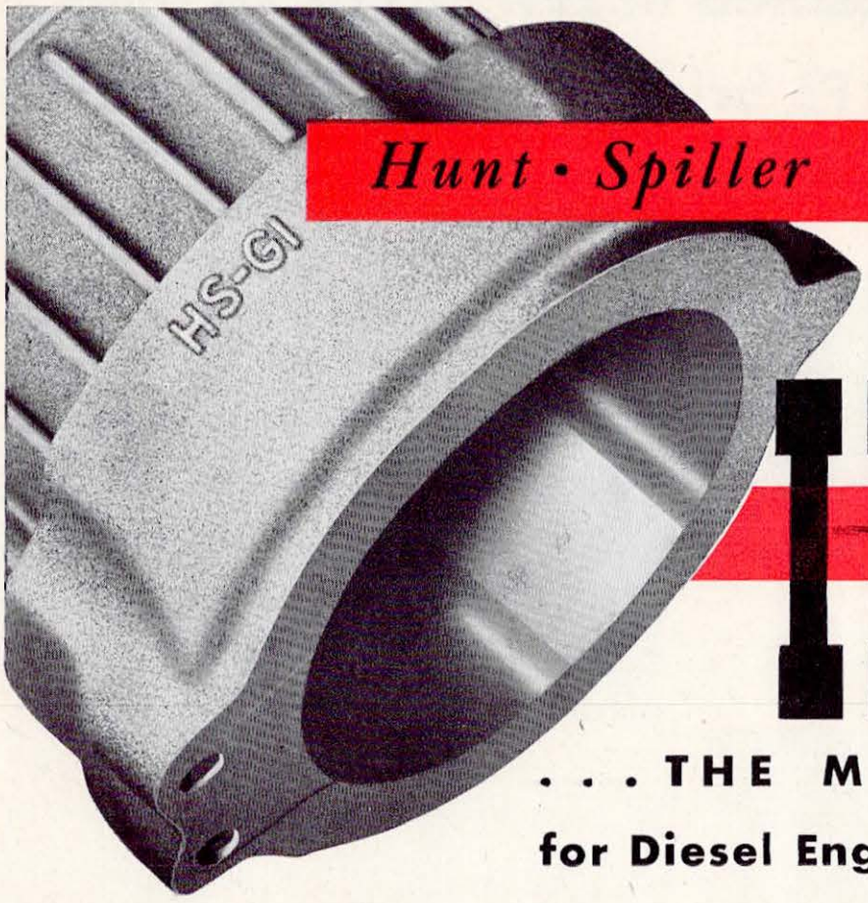

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The development of Gun Iron dates back to the founding of this company in 1810. Through the years it became widely known in the production of guns of many types of which this twelve-inch rifle casting of the 1840's is one example. It was because of this emphasis on ordnance products that the term "Gun Iron" was adopted.

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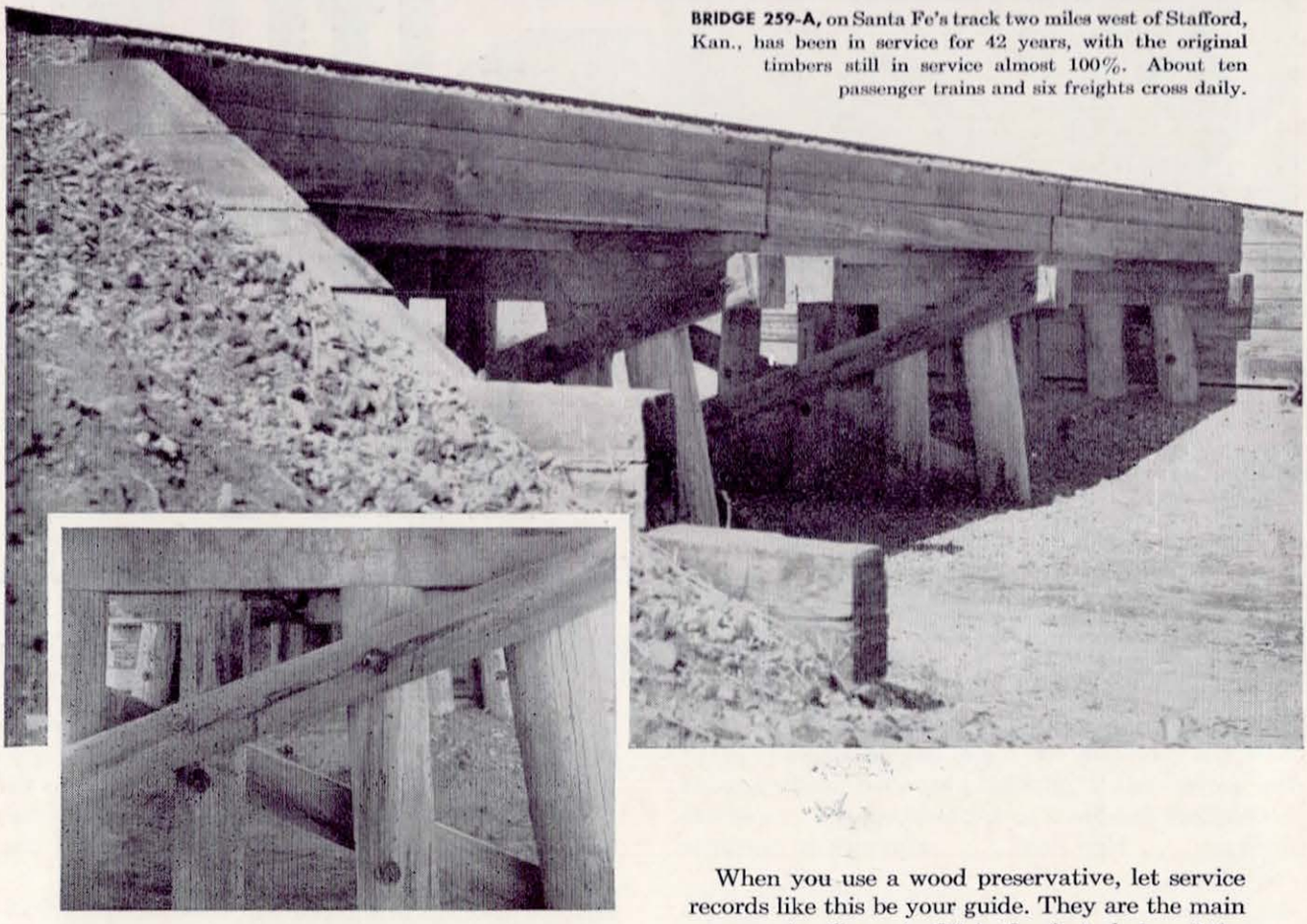
Here's Proof of Performance...

Pressure-creosoted in 1911, 23 of 24 piles in this Santa Fe bridge are still serviceable



BRIDGE 259-A, on Santa Fe's track two miles west of Stafford, Kan., has been in service for 42 years, with the original timbers still in service almost 100%. About ten passenger trains and six freights cross daily.

THIS CLOSE-UP of part of Bent 3, Bridge 259-A shows original piling, sway brace ends, cap and flooring.

PRESSURE-TREATMENT with Creosote Oil paid off for the Atchison, Topeka & Santa Fe Railway in construction of this 42-foot bridge on single track two miles west of Stafford, Kan.

The bridge was built in 1911 and today the original ballast flooring and curbs, the dump planks and 23 of the original 24 piles are still in service. When inspected on May 10, 1952, the pressure-creosoted wood appeared to have at least 10 more years of service remaining.

When you use a wood preservative, let service records like this be your guide. They are the main reason why Creosote Oil is the first choice of the wood preserving industry.

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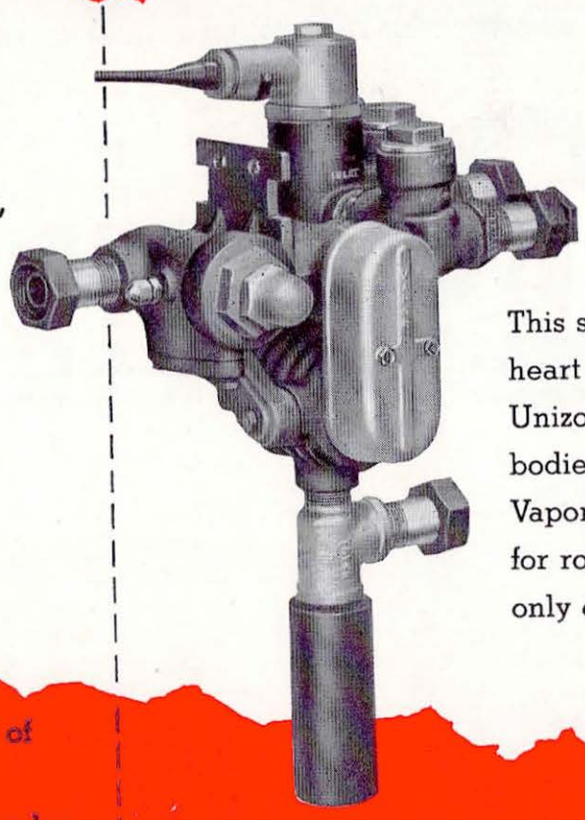

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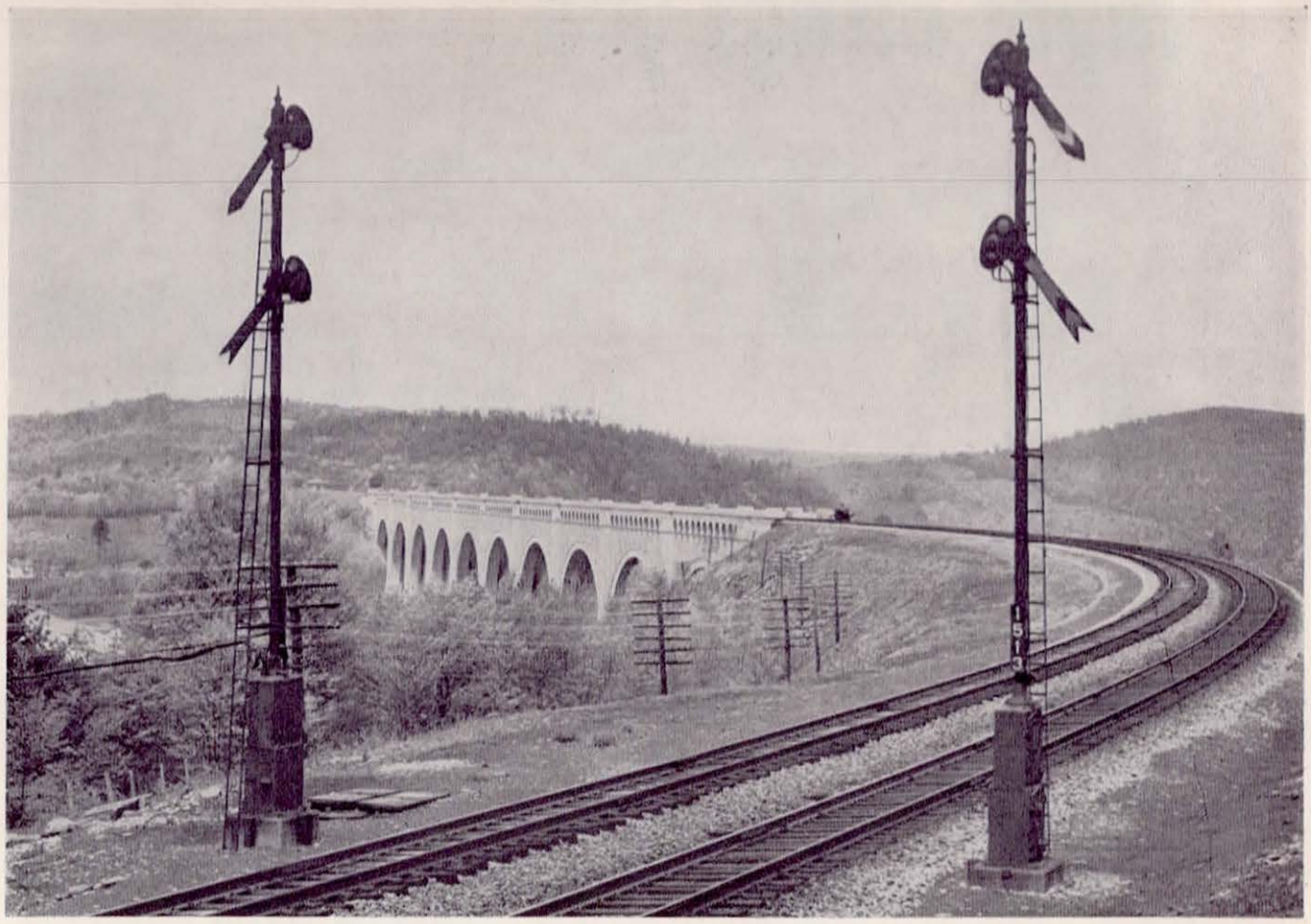
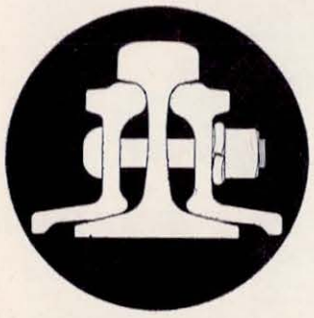
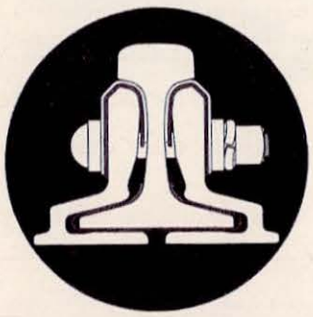


Tunkhannock Viaduct on the Lackawanna





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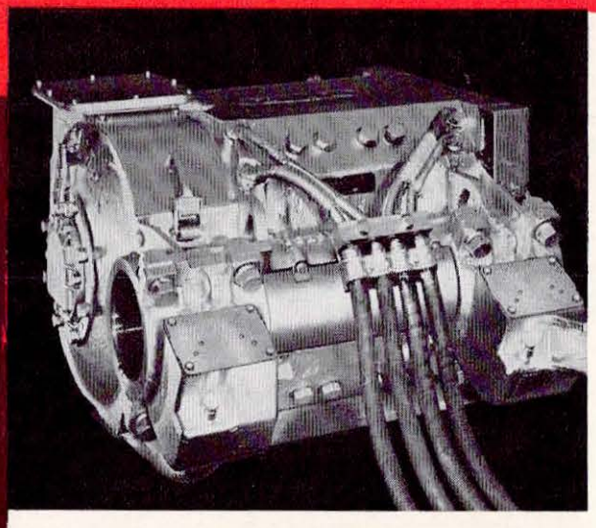

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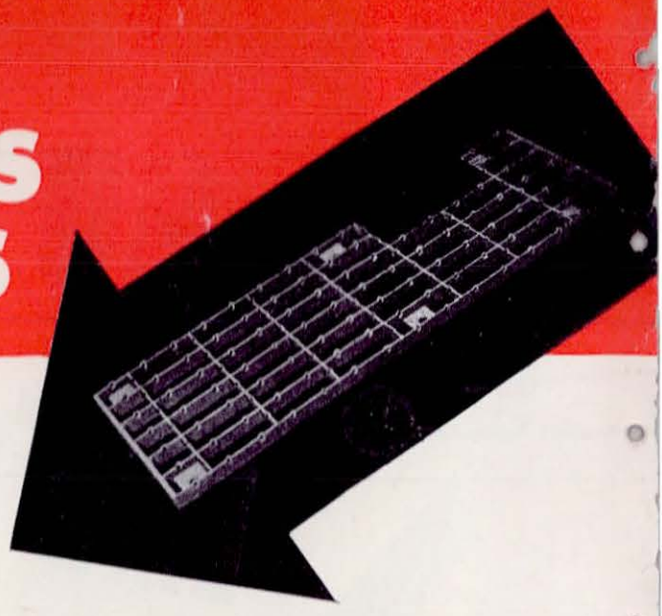

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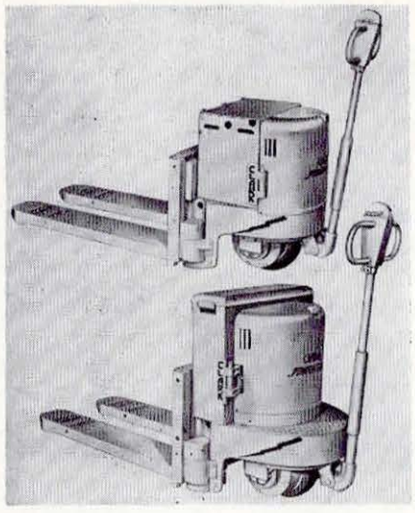
Clark 1953 Model "Powrworker" Pallet Trucks



New 1953 model battery-powered electric pallet trucks have been announced by the Clark Equipment Company, Battle Creek, Mich., for its "Powrworker" line. The new models can be supplied with forks to handle any size pallet, either single or double faced, with a capacity rating up to 6,000 lb.

Optional models are available with single-tray or double-tray battery layouts. The double-tray model is designed so that it can be ridden or walked.

The "Powrworker" pallet trucks feature double hoisting cylinders for lifting the loaded pallet, motor-in-wheel drive, full time delay control with all contactors interlocked for smooth, progressive speed positions, positive safety-spring return handle which applies brake and cuts off power, and a bumper guard located higher to avoid operator injury. The cast steel frame, forks and elevating carriage provide great strength and stability.

Foundation Borer with belling vanes extended and bottom doors open.

Foundation Borer

Gar Wood Industries, Wayne, Mich., has recently made available an optional and convertible attachment called the Foundation Borer, for use with Gar Wood shovels. The device, which performs what the manufacturer terms a "hole-in-one" operation in excavating for unreinforced-type concrete footings, consists of a digging bucket mounted on a crane. This bucket, started into the ground through a starting ring, is rotated, causing the cutter blades on the bottom and sides of the bucket to guide soil into the bucket. When full, the bucket is raised and swung away from the hole where it is dumped by opening the bottom doors and belling vanes.

Belling of holes is accomplished by opening the side vanes at any desired depth, causing the blade on the vanes to trap the dirt into the bucket. As soon as the boring operation is completed, concrete can be poured into the belled hole to await steel construction. No backfilling is required.

Wall-Desk Telephone

A new "all-in-one" telephone, a combination wall-desk instrument, designed to fit any application with a minimum of modifications, has been produced by the Connecticut Telephone & Electric Corp., Meriden, Conn. The phone is a universal local-battery unit which can be converted to a manual common-battery phone without adding either electrical or mechanical parts. The new telephone also can be converted to a common-battery dial phone merely by the addition of a dial and dial bracket.

The handsets, equipped with "Koiled Cords," are molded of a thermoplastic material said to be capable of resisting breakage when dropped from a height of 20 ft. to a concrete pavement. The wall-desk phone features a new hook-switch consisting of two sensitive enclosed switches sealed from lust and dirt.

All parts of the phone may be removed or interchanged with a screwdriver, enabling quick repair and maintenance.

The instrument can be purchased with or without 4-conductor desk cord, depending upon whether connections will be made directly to the phone, or at the connector block. A screw-type terminal board is mounted inside the phone for ease in connecting the desk cord or line wires.

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After a long period of efficient service, Westinghouse Friction Draft Gears can be restored to their original A.A.R. capacity and efficiency at low cost.

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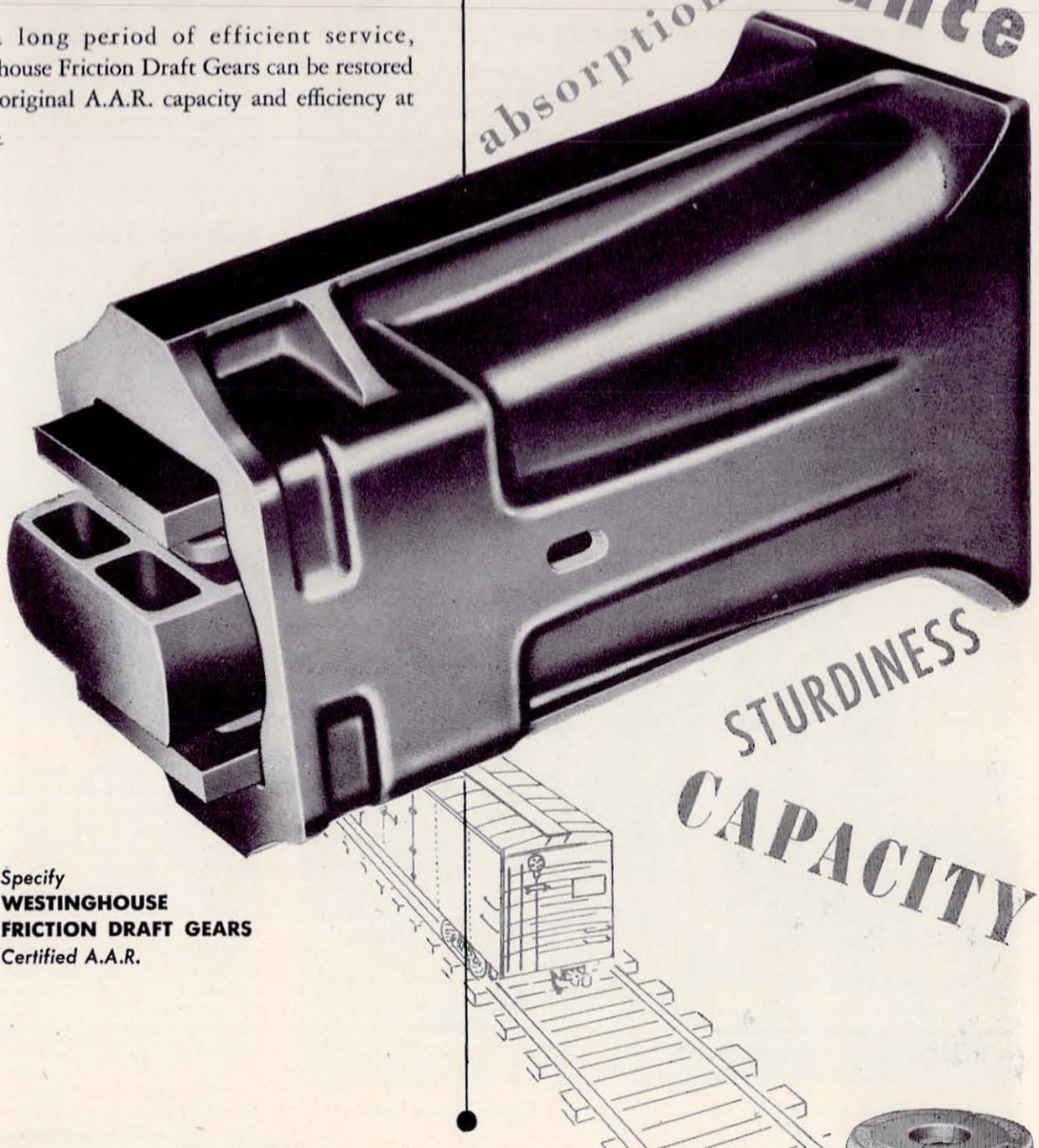

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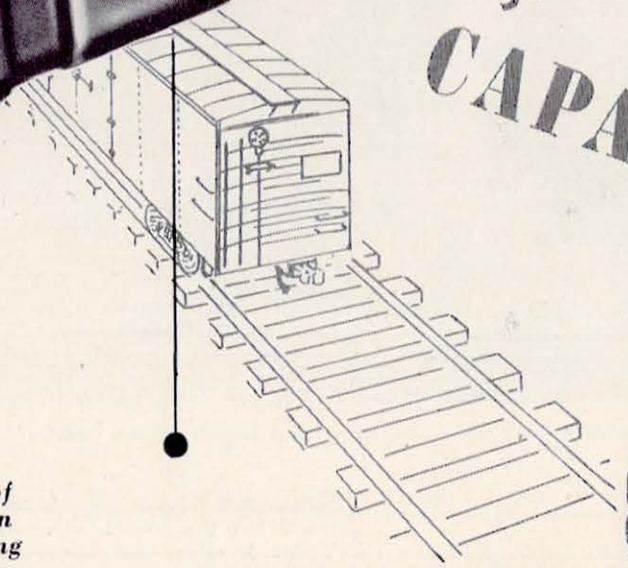

According to the Association of American Railroads, more than 98% of cars in freight carrying service are A.A.R. construction and are equipped with Friction Draft Gears.

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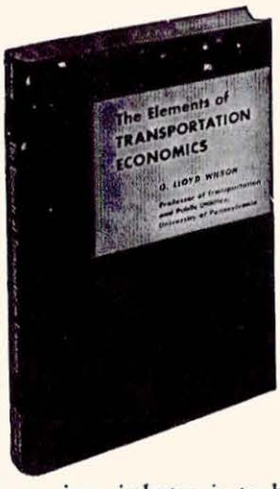
The Elements of

TRANSPORTATION ECONOMICS

by G. Lloyd Wilson

Professor of Transportation, University of Pennsylvania



To get ahead in the transportation field, you must have a grasp of the larger issues of the subject. You can't get by, for instance, without an understanding of how transportation, industry and commerce mesh together—and how this set-up will develop in the future. This is basic and your key to understanding it is familiarity with basic transportation economics!

Do you know how Transportation determines whether a given industry is to be conducted as a large, medium or small-scale enterprise? What "place utility" is? How "cross-hauling" can be justified? Can you name six well-defined channels of marketing manufactured goods? Or fifteen principal classes of transportation instrumentalities? These and many more answers are yours in Dr. Wilson's keenly-written analysis. You will find exactly what you need in Dr. Wilson's book.

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Benchmarks and Yardsticks

THERE ARE FEW SUCCESSFUL industry executives who can go very far in enumerating the multitude of practices and principles they follow which explain their success. Most of them are aware of a few general rules to which they adhere but the conscious list is seldom more than a fraction of all the habitual ways they have of doing things which, in combination, produce effective management.

Perhaps the outstanding exception to this rule of "I can do it, but I can't tell you how" is Chester I. Barnard. He has probably written more comprehensively than any other experienced executive has ever done on the detailed pattern of action which a successful executive pursues. In his book of essays entitled "Organization and Management" he reveals that he formerly looked upon "the development of the individual" as "an ideal, with many doubts and reservations as to its practical significance or consequence in the everyday work of management." He goes on to say, however:

"Since then, continual observation and the analysis of my own experience in public and private organizations has convinced me that [this] idealization, if you wish to call it that, of personnel objectives is highly practical in the long view."

No practical executive, of course, ever dismisses from his mind the goal of satisfactory net earnings—but a producer who eyes the earnings goal so fixedly that he neglects the *means* to such earnings won't very likely get what he is seeking, or not for long anyhow.

And the development of the capacities of individual employees is a two-edged weapon for the attainment of net earnings. For one thing, it promotes individual efficiency and hence the productivity of the organization as a whole. For another, the increasing satisfaction that an employee gets from *all* phases of his job may reduce the amount of satisfaction he will be impelled to demand in the form of money.

It is a notorious fact that it is hard to pay men enough to get them to work efficiently at jobs which are tiresome, which seem meaningless, which demand no brains and which carry no prestige, giving the holder nothing whatever attractive except what he gets on payday.

The hard part of applying the principle of development of the individual as a major goal of management is that, if it is emphasized half-heartedly and obviously only as a means of getting more out of the employee, it won't work. If you're going to get people to do better work because they believe you're doing your best to help them, then you've probably got to make a habit of being helpful and forget all about why. J. G. L.

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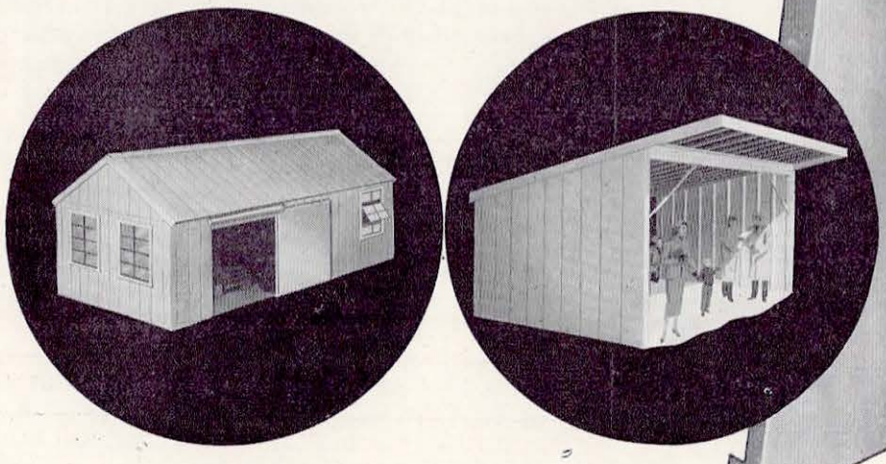

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THE EASTERN ROADS GET SUED

The suit of long-haul truck operators in Pennsylvania against the Eastern railroads (*Railway Age*, January 26, page 17), raises some fundamental questions of political behavior which are important, not only to transportation but to all business and to all citizens in every state in the union. These truckers are, of course, interested only in the legal issue—but, in the long run, the law must respond to the answers public opinion gives to questions in ethics, economics and politics which an action of this kind inevitably raises.

Two Questions

The present legal issue will be resolved by the court, and will not be discussed here. The moral and economic —and political—issues may be summarized in the form of two questions, viz.:

1. In inter-industry political conflict, what kind of blows and weapons are honorable and tolerable and what kind are "below the belt" (not necessarily legally, but morally and economically)?

2. When an industry does business on public property, what "watch-dog" activities are needed and justifiable in political morality on the part of other citizens to prevent such *use* of public property from degenerating into *abuse?*

And Some Answers

In partial answer to the first question it will be readily and generally agreed that no industry has the moral right—nor would informed public opinion support it—in gratuitous effort to weigh down its rivals with political shackles from which it itself is free. For competition to promote the public interest, the conditions under which rival bidders for customers are required to operate should be equalized. Unless these conditions are equal, patronage may be diverted from the competitor with lower costs to the one with higher costs—and that is the route to reduced national wealth and income, and to the waste of the national patrimony.

For instance, nobody would question that it would be morally reprehensible (because against the economic welfare of the country as a whole) for industry A to endeavor politically to get a sales tax placed on rival industry B, while industry A was not burdened with such an impost. It may not be so quickly evident, but it would be morally just as wrong for industry A to tolerate political restraints on its own operations which are not equally applied to its rival B. The evil lies in the inequality, and it is just as wrong when tolerated by a competitior in his own case as it is when he tolerates or advocates it for a business rival.

If railroad people honestly believe, on competent evidence, that long-haul highway carriers in a given state are being charged less than their proportionate share of highway costs (as railway traffic has to cover similar roadway costs in full), then they would be mighty poor citizens if they should keep that conviction to themselves. They have a duty, not only to their stockholders and their customers but to the public welfare, not to tolerate an arbitrary and uneconomic handicap to their competitive disadvantage.

But who is to decide whether, in actual fact, the railroads' rivals are indeed enjoying such arbitrary political favors?

If the railroads alone do the deciding, they run counter to the sound principle that no man is a reliable judge in his own cause. But this danger is avoided if, in such a situation, the railroads are not dominated by their own convictions, but limit themselves to the position taken by highway authorities, tax associations, and other citizens' groups who have no selfish interest to serve in favoring the railroads, but are concerned only with their own and the general welfare. Thus it is that the so-called "third party approach" is not only justi-

fiable, but is in fact the only approach which can remove inter-industry debate from the suspicion of mere self-seeking.

The other ethical and politico-economic issue implicit in this Pennsylvania action—i.e., what force is there to prevent commercial *use* of the highways from degenerating into *abuse*—is not complex, but is vitally important. When a business conducts its operations on public property, getting the use of this property on progressively more favorable terms becomes its almost inevitable objective—toward the attainment of which the business can well afford to assign competent and full-time talent. Pitted against this expert offensive force, the isolated citizen and taxpaper can oppose only an inexpert and part-time defense *unless* he can get the help of business interests who have as much at stake in preventing the users of public property from obtaining extravagant favors, as these users have in trying to obtain them. It would be a sad day for the public treasury if all the expert and full-time effort in such a debate were to be allowed to become a monopoly of the offensive—while the defensive was restricted to the unskilled effort of part-time amateurs.

As stated at the outset, the Pennsylvania lawsuit is a legal action which we leave to contending parties to argue and the courts to decide. But the attendant questions in the field of moral and political behavior are of wide applicability, and on these questions discussion beyond the narrower realm of the actual law is proper and timely. Allegations of bribery and corruption aside (and to which, of course, we would give no credence without proof), it is our belief that it is not only morally defensible, but morally obligatory, upon railroad men both nationally and locally, to lend reasonable and competent support to civic interests which are striving to prevent the commercial use of public property at charges which impartial authority has found to be less than compensatory; or by vehicles of a size or weight disproportionate to the physical standards established for the property so used.

What the facts and the positive law in this particular lawsuit may be is for others to decide, but there can be no doubt that the moral law both justifies and requires that the railroads perform their civic duty as responsible taxpaying citizens in endeavoring by all legitimate means to protect public investment in transportation property from abuse. Such a position could be proudly proclaimed and easily defended in the court of public opinion—which, in the long run, is frequently the court of ultimate jurisdiction.

A CRUCIAL YEAR FOR THE RAILROADS—1953

No railroad man is going to quarrel with the idea that railroads should be regulated by the government to some degree. Although we have to operate under the same economic laws as any other industry, we are an essential public service. The public, therefore, not only has an interest but, through a proper governmental agency, should have a reasonable voice in checking how we conduct ourselves.

But regulating us in the public welfare in 1953 is one thing, and regulating us for the sins of our grandfathers is another. Generally we don't normally do things that way in this country, but that is what has happened to the railroads. . . .

Rules are applied to the railroads which apply to no other branch of transportation—rules under which it has become literally impossible for the railroads to compete for certain kinds of traffic. . . .

This unfair competitive situation has held down our earnings for many years, but what really worries us is that, aided and abetted by inflation caused economic problems of the first magnitude, it has carried over into a period of unprecedented industrial prosperity. It is a fact that today we are practically the only industry in the United States that is in worse financial shape than at the end of World War II. . . .

I am not exaggerating in the least when I say that without even going into bankruptcy, this paucity of finances can cause curtailment of expansion and improved-service programs. So much so that it wouldn't take long for the uninformed public to ask for the government to come running to our rescue with subsidies in some form or another. And with them, of course, more controls, less efficiency, and ultimately nationalization. . . .

Now, while I've sketched a pretty grim picture, I'm certain that it need not happen. Particularly if we can secure recognition of the problem among the business and agricultural leaders of the country, for we haven't had a more businesslike administration in Washington for many years.

But we can't afford to be lulled into false security simply because the ear is there. The sound and fury has to strike the ear before anything happens. . . .

But something more is needed before Congress acts, and that is, evidence of broad public concern. I'm happy to report that we're getting results, largely because of the informational campaign we Eastern railroaders have been carrying on for a year now to supplement efforts of the Association of American Railroads. A number of national and state organizations have gone on record as being concerned about the railroad industry and have indicated there's need for a change in government policy and law.

Among them are such farm organizations as the National Grange, the American Farm Bureau and such business interests as the U. S. Chamber of Commerce and various state chambers. . . .

Nineteen fifty-three is a crucial year. If we can't get relief from oppressive regulation in 1953 we may as well orient our industry toward the public treasury—a tragedy which would compound the many decades of chaotic folly of government behavior in connection with railroads, America's first-regulated, worst-regulated industry.

—Perry M. Shoemaker, president of the Delaware, Lackawanna & Western, in a talk at the midwinter conference in New York of New York State Chamber of Commerce executives.

This special mounting of the antennas at Patton overcame fading due to reflection on water.

Beamed radio on 68-mile direct route replaces telegraph and telephone communication on line wires on 315-mile route—Proves microwave will operate over swamps and large bodies of water

Santa Fe's Microwave Spans Bay and Gulf

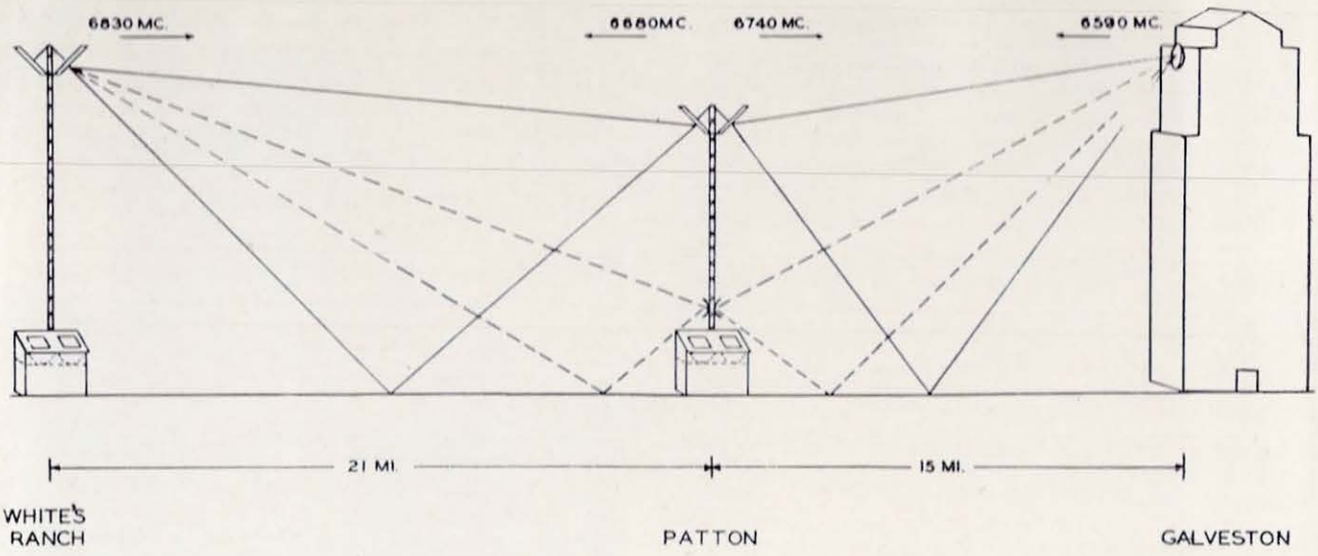
The Atchison, Topeka & Santa Fe has placed in service a microwave radio relay system between Galveston, Tex., and Beaumont, an air line distance of 68 miles, across Galveston bay and an arm of the Gulf of Mexico. Previously, the railroad telegraph and telephone communication between these cities was handled by line wires on railroad pole line via Somerville and Silsbee, a total of 315 miles. The new microwave system carries eight duplex voice channels and six FM telegraph carrier channels, by means of which 22 people can simultaneously communicate by telegraph and telephone.

At Galveston, microwaves (super-high frequency radio waves) are directed from a parabolic antenna atop a 116-ft. office building, toward the first repeater station at Patton. Here the radio waves are received, amplified and directed toward the next repeater station at White's Ranch. The process of receiving, amplifying and redirecting takes place at each of three repeater stations until the microwaves reach the terminal at Beaumont, where they are received. The process operates in the same manner for transmission back from Beaumont to Galveston.

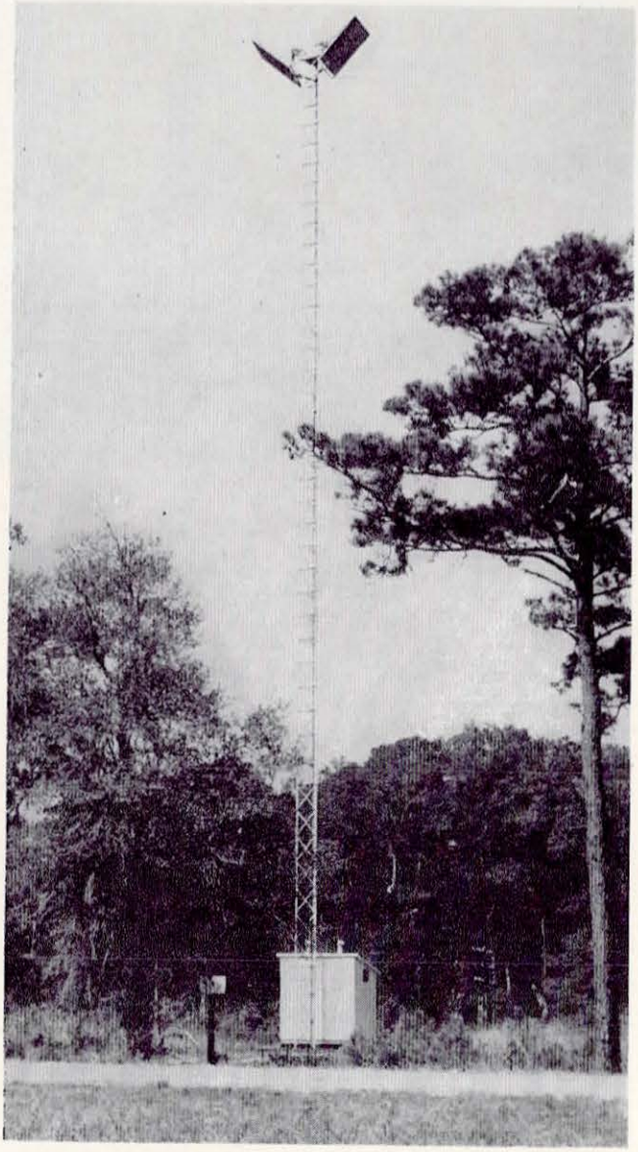
A typical repeater station contains microwave equipment inside a 6-ft. by 8-ft. concrete housing with the parabolic antennas mounted in the house. They project the radio waves vertically up through Fiberglas windows in the housing roof to rectangular plane reflectors mounted at approximately a 45-deg. angle atop a steel tower. The radio waves are reflected 90 deg. and directed in a horizontal direction toward the next station. At Beaumont, the incoming radio signal strikes the reflector atop another steel tower and is projected downward to the receiving antenna in the equipment housing.

Over Land and Water

The three repeater stations are approximately 17 miles apart. From Beaumont to Morey, 16.8 miles, the terrain is flat, dry farmland with trees and buildings. From Morey to White's Ranch, 15.7 miles, there is dry land



At Patton, the parabolic antennas were mounted on the steel masts at the house to direct the signal paths as shown by dash lines, so that points of reflection are changed from that shown by solid lines.



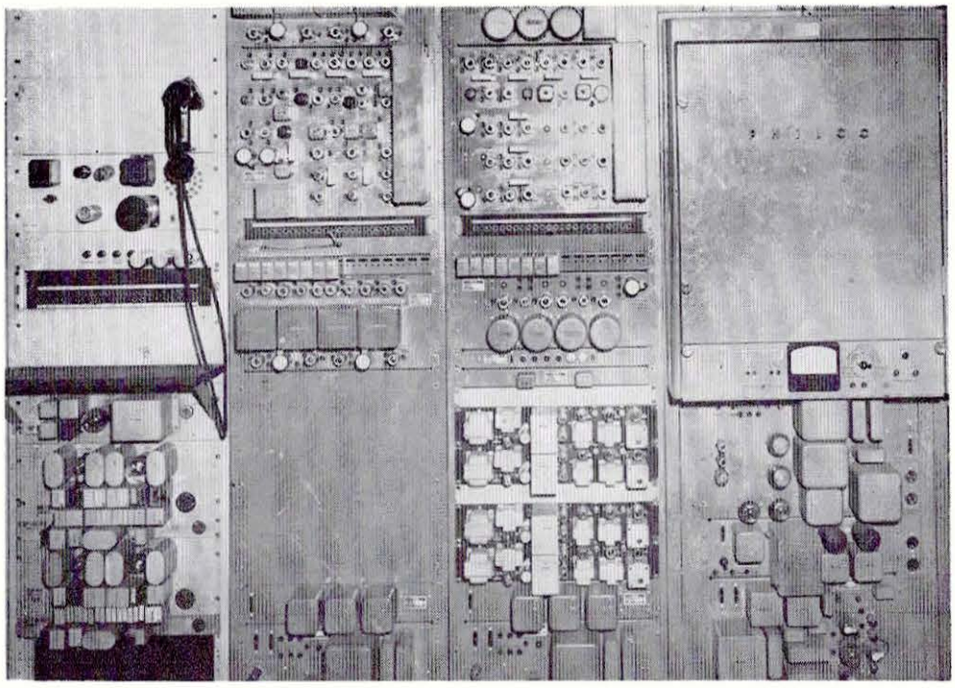
At Morey repeater station, the rectangular plane reflectors are on a 145-ft. mast.

with few trees and ranch buildings along the path of the microwave signal. White's Ranch to Patton, 21 miles, is over rice farms, salt water swamps and part of Galveston bay. And the last hop of 15 miles from Patton to Galveston is over the Gulf of Mexico. The Galveston-Beaumont locale was chosen, not only because of the need for increased telephone trunk and teleprinter service as well as message and dispatcher phone service; but also because weather conditions along the Gulf Coast would provide severe tests of operation and reliability.

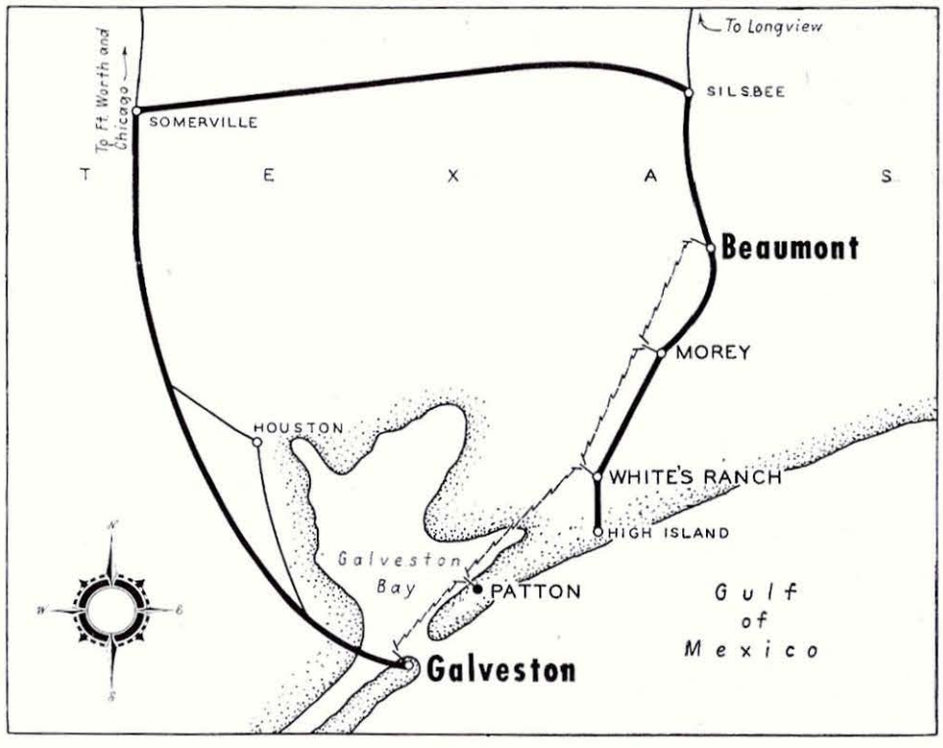
The basic equipment is Philco Model CLR-6 microwave radio relay equipment over which Philco Model CMT-4 pulse amplitude modulated time-division multiplex operates. This system operates in the frequency band 6,575-6,875 mc., and provides eight voice channels: one service channel, one dispatcher's phone channel, two message phone channels, two trunk PBX, one idle channel, and one telegraph carrier channel. The first or service channel has drop-outs and inserts at all repeater stations, thus providing communication for field service personnel. This is a party-line channel which also carries a fault tone signal from the Beaumont terminal and the three repeater stations to the control terminal at Galveston. This fault tone indicates whether primary or standby equipment is in operation at a particular station.

The second channel carries the dispatcher's telephone circuit. The third channel picks up the message telephone circuit from Somerville, which is the junction of the Gulf, Colorado & Santa Fe line to Beaumont with the Chicago-Galveston main line. The fourth channel picks up the message telephone circuit from Longview, which is an interchange point between the GC&SF and the Texas & Pacific. The fifth and sixth channels are used for trunk telephone service between the two terminals. The eighth channel carries six FM telegraph carrier channels, and can be expanded to carry 14 telegraph carriers. This channel provides ringing for the dispatcher's telephone circuit and the two message telephone circuits. The other telegraph carrier channels are used for teleprinter circuits, or pick up Morse wires for termination in the Galveston relay office.

The message phone circuits and the dispatcher's telephone circuit ring with three and one-half cycles from Galveston. The ring keys at Galveston operate the send



This terminal equipment for the microwave system is located in the office at Galveston.



The microwave system takes a short cut across the bay but land lines follow a 315-mi. route via Somerville and Silsbee.

relay on a telegraph carrier channel. The receive relay on this channel operates the relays of the ring case at Beaumont to provide ringing battery to the physical circuits at that point. The ringing on the telephone trunk circuits is provided by Western Electric 1000/20 cycle ring oscillators. The operators contact the dispatcher in the normal manner. The message phones have 20-cycle ringing from the field by means of hand generators. These operate a 20-cycle relay at Beaumont which actuates the send relay of a telegraph carrier channel. The receive relay of this channel operates a telephone type relay at Galveston which applies 20 cycles to the PBX drop at that point.

Fading of the signal has been experienced between White's Ranch, Patton and Galveston where the system traverses swamp land, Galveston bay and an arm of the Gulf of Mexico. The Santa Fe determined that interference with the direct wave by the reflected wave is greater when the point of reflection is on water than when on land. In the diagram on the facing page, the solid lines indicate this form of interference. This fading was overcome by placing the parabolic antennas at Patton on the steel tower just above the equipment houses, as illustrated on page 35. With this change, the signal paths are as indicated by the dash lines, so that the points of reflection are now on land, rather than on water, on

this Galveston-Patton section. This reduced the fading trouble materially.

The Santa Fe chose microwave for this installation for several reasons:

Advantages of Microwaves

- This system has the ability to produce very narrow beams of radiated energy from small antennas, which means that the microwaves can be beamed in one direction with the virtual exclusion of all other directions.
- Narrow-beam antennas have high gain which means less power is required for signal transmission.
- Microwave systems are wide band, hence capable of carrying many channels.
- Economic advantage of replacing pole lines.
- Since wires are not needed for transmission, communication over water is practicable.
- Radio communications in this instance provided a shorter transmission path between the two terminals.

In light of his experience in directing the installation, testing, and operation of this microwave system for the Santa Fe, L. R. Thomas, electronics engineer, has formulated four suggestions for setting up a microwave system for railroad service, viz.—

"1. Pick the section of the railroad on the basis of: (a) the number of through circuits needed; (b) as few drop-out circuits as possible; and (c) accessibility of power and repeater sites.

"2. Lay out the repeater points to provide path lengths not to exceed approximately 25 miles. If the path is over water, it is my opinion that the path length should provide line-of-sight operation from the top of one tower to ground level at the other repeater location. This should assure a minimum of change between the direct signal and the signal reflected off of the surface of the path between repeaters thus providing a more stable circuit even if the signal level is somewhat lower.

"3. Towers should be guyed so their maximum twist will not be in excess of that which will provide 3 db. loss in signal. That is, if an antenna system provides a 3 deg. beam at half-power points, the tower twist should not exceed one and one-half deg.

"4. When deciding upon the type of equipment to use, be sure to discuss problems with each company's engineers and inspect the equipment carefully to see that it is ruggedly constructed and has ample margin of safety built into it insofar as components are concerned. Carefully check the maintenance required. The field is new, and even the engineers involved have had very little, if any, experience with maintenance of the equipment. Therefore, the problem will be to decide whether the equipment will be relatively easy to maintain."

This microwave system was engineered and installed under the supervision of the Philco Corporation, which furnished the major items of equipment. The project was carried out under the jurisdiction of J. A. Parkinson, superintendent of communications, AT&SF, and directed by L. R. Thomas, electronics engineer.

Letter from a Reader . . .

Not Enough Candor in Discussing Passenger Problem

OHIO

TO THE EDITOR:

In your October 27 issue you report a railroad president calling for more tax-subsidized superhighways as the only solution to the commuter problem, although he admits only rail service can do the ultimate job. Rather than solve the problem of providing the best service by rail he wants to avoid it by switching to inferior buses on tax provided facilities. Then in your November 3 issue, a vice-president is quoted as thinking just the opposite. Both men have a right to their opinion, but the problem can't be solved until there is general agreement.

The superhighway is a menace to free enterprise. You can't win a battle for free enterprise in railroading if you believe in socialized highways. Even toll roads pay no income and property taxes. Federal and state aid completely becloud the facts. My own studies show that automobile transportation by urban superhighway costs 6 times as much as untaxed rail transit service would. It is political pressure upon vote-conscious officials that builds these things—not economics. Do you know that all new highways are "paid-for" by allocating 1 cent for each minute estimated to be saved by prospective users each time they use the facility? Think of the profit to a railroad handling commuters, if it got, say 1 cent, from Uncle Sam for each minute it saved its commuters in entering the city.

Because of the tremendous inequities loaded upon railroads, railroad executives tend to become self-righteous and martyrs, without realizing that sometimes there are things that they can do.

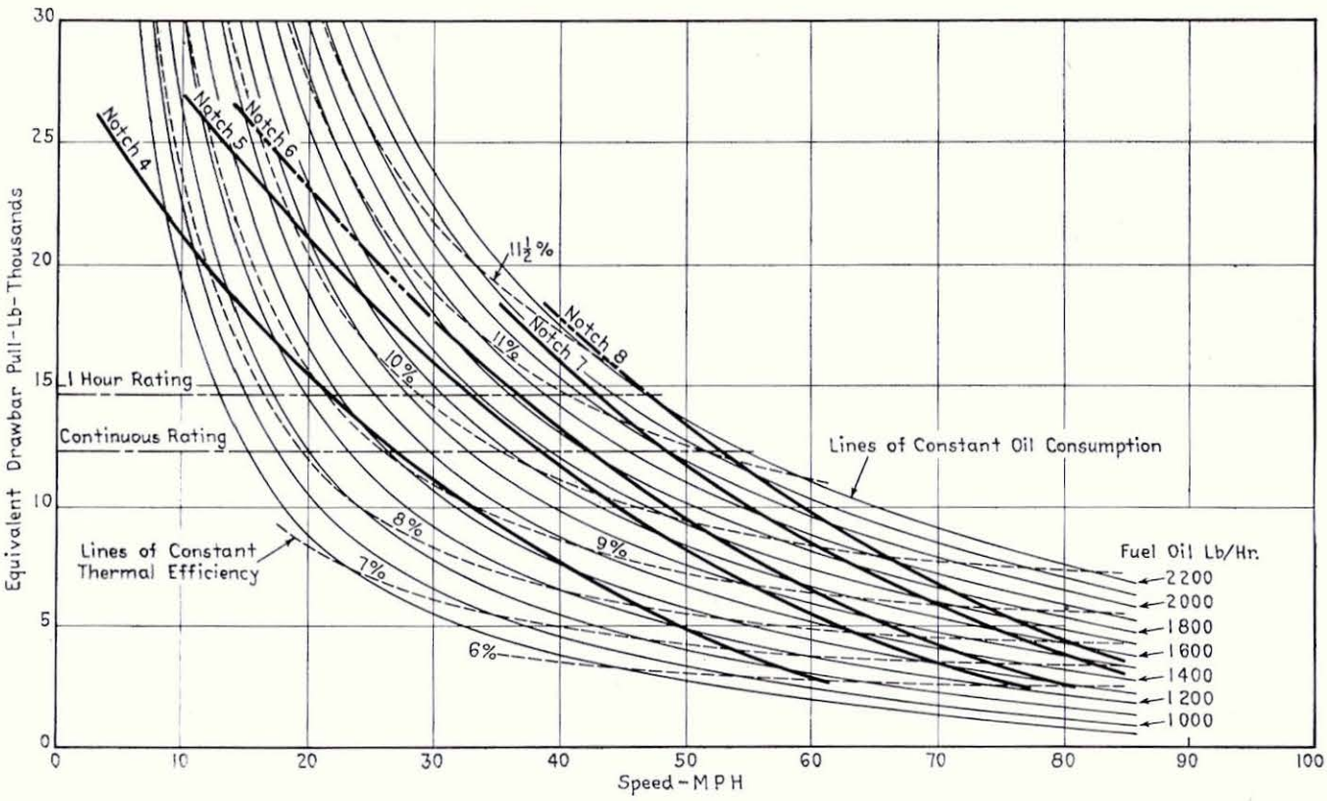
You all complain of passenger deficits and of the opposition to reduction in train service. Last year I wrote one of our carriers suggesting, mile by mile, dollar for dollar, that better service could be operated at less cost. I got a generalized answer but no results. Ten months later trains were cut off. We protested. At the hearing, the carrier presented no evidence, but claimed that "the public had forsaken the train." We presented honest evidence to show that the train could be worth $140,000 per year in contributions to general overhead if it were shortened to reduce expenses. The railroad made no effort to either show the error of our thinking or to accept our suggestion. It merely made a statement about pushing freight rates still higher.

You will never get anywhere politically, unless you can offer something that will benefit the constitutents of the politicians, and explain it in common terms. I have often offered, as an unbiased neutral, to bear witness to the unfair loads carried by the rails but never has anyone cared enough to use me. I want to help, but all I get is abuse for protecting the public when sincere calculations show a mutual advantage for the carrier.

It seems to me court action could often be used, even with little hope of victory, for the purpose of airing grave problems before the public and press. Fundamentals should be agreed upon. The oil and rubber companies should be solicited to give up eating at the public trough. Public-spirited men should be called to explain to the public in unbiased terms of higher living costs. Data presented to congressional committees may be accurate, but it doesn't motivate anyone.

I don't doubt the high purpose of your motives, but I do think a different and better approach is imperative.

INDUSTRIAL ENGINEER



Drawbar-pull characteristics of the British Railways gas-turbine locomotive No. 18000 burning heavy fuel oil with gross heat value of 18,630 B.t.u.

British Road Tests Reveal . . .

Efficiency of a Gas-Turbine Locomotive

Dynamometer car used in passenger service—Efficiency of power plant 10 to 12 per cent—Initial gas temperature 1,100 deg. F.

By E. C. POULTNEY, O.B.E.

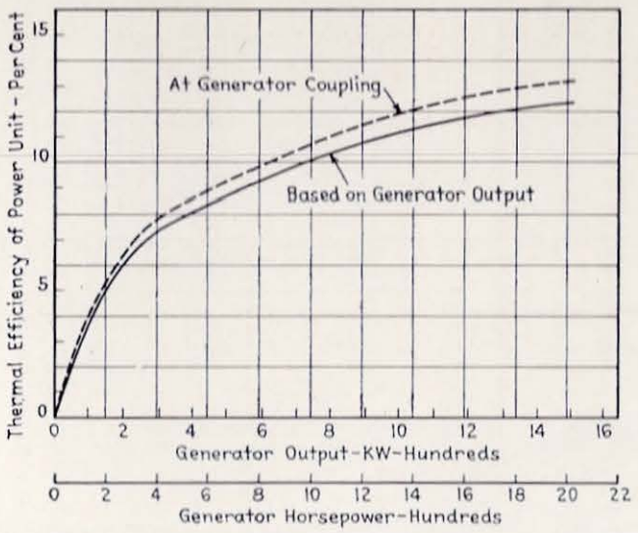
One of the first, if not the first, complete tests of a gas-turbine locomotive, employing a dynamometer car for the purpose of determining quantitatively its traction and fuel-consumption characteristics, was conducted on the British Railways gas-turbine-electric locomotive of approximately 2,000 hp. capacity built by the Brown-Boveri Company of Switzerland. The tests were conducted in the same territory and employ the same procedure followed at an earlier date in testing steam locomotives in passenger service and are comparable.

These tests disclose a thermal efficiency of the power unit based on the generator output which varied between 10 and 12.2 per cent with power outputs between 1,000 and 2,000 hp. The overall thermal efficiency of the locomotive, as distinguished from that of the power plant, for the test trips in revenue passenger service varied from 6.3 to 7.1 per cent. The corresponding steam service on the same line, with slightly less average drawbar horsepower, ranged in efficiency from 4.8 to nearly 5.2 per cent.

Tested Prior to Service

Early in 1950 the first gas-turbine locomotive for service on the British Railways was received at the Swindon works of the Western Region from the Brown-Boveri Company. The locomotive, No. 18000,* before being placed in revenue service was submitted to preliminary trials which disclosed certain difficulties and resulted in modifications to the compressor which, it was stated, would cause some loss of efficiency. Adjustments to the combustion system were also carried out by the builders.

*See *Railway Age*, September 23, 1950, page 22, for a description of the locomotive as built.


Thermal Efficiency of Power Unit - Per Cent
15
10
5
0
At Generator Coupling
Based on Generator Output
0 2 4 6 8 10 12 14 16
Generator Output-KW-Hundreds
0 2 4 6 8 10 12 14 16 18 20 22
Generator Horsepower-Hundreds

Relation of thermal efficiencies to horsepower output of the power plant of the British Railways gas-turbine locomotive No. 18000.

TABLE 1 — AVERAGE PERFORMANCE OF BROWN-BOVERI GAS-TURBINE LOCOMOTIVE No. 18000* BETWEEN LONDON AND PLYMOUTH

	London-Plymouth	London-Plymouth	Plymouth-London
Trip	1	2	3
Distance, actual miles	225.2	225.2	225.2
Distance under power, miles	182.2	189.4	185.6
Ton-miles, excluding locomotive	78,000	78,000	82,400
Running time, min.:			
Scheduled	259.0	259.0	275.0
Actual	252.3	251.3	269.0
Overall, including stops	265.5	264.4	296.3
Actual, under power, less drifting and idling	209.9	204.0	213.4
Average speed, m.p.h.	53.6	53.7	50.2
Work done, drawbar hp. hr.	2,520	2,824	2,621
Average drawbar hp. hr.	721	831	736
Average drawbar pull, tons (2,240 lb.)	2.25	2.59	2.46
Oil Used, lb.:			
Heavy	4,960	5,230	5,450
Light	224	223	250
Total	5,184	5,453	5,700
Heavy, under power	4,496	4,727	4,759
Light, under power	177	172	180
Total, under power	4,673	4,899	4,939
Oil rate drifting and standby, heavy and light, lb. per hr.	550.6	550.6	550.6
Oil, gross calorific value, B.t.u. per lb.:			
Heavy	18,530	18,580	18,680
Light	19,610	19,590	19,530

*Weight 119.2 tons (2,240 lb.); ton miles—tons of 2,240 lb.

The dynamometer tests were undertaken during September 1951 after the locomotive had completed 46,000 miles, equivalent to 1,130 hours in service.

Specifications of the Locomotive

The Brown-Boveri gas-turbine locomotive weighs 266,896 lb. in working order. The weight on the driving wheels is 182,672 lb. which, with the maximum tractive force available at starting and up to 21 m.p.h., gives an adhesive factor of 5.8. The locomotive runs on two six-wheel trucks, each of which has two driving axles, each geared to a traction motor. The gear ratio is 3.48 to 1 and the traction motors have a continuous rating of 397 kw., 720 volts, 585 amp. at 1,550 r.p.m. The one-hour rating is 394 kw., 636 volts, 660 amp. at 1,290 r.p.m.

The power unit is a 2,500-hp. seven-stage gas turbine, using fuel oil, combined with a 22-stage air compressor delivering air pressure of 36 lb. per sq. in. The turbine and compressor speed is 5,200 r.p.m. The inlet gas temperature is 1,100 deg. F., and the exhaust temperature is about 480 deg. F. The main generator is a 10-pole continuous-current machine gear-connected to the turbine through reduction gearing giving a ratio of 6.6 to 1. The maximum operating voltage is 760 and the continuous rating is 2,340 amp. at 675 volts and the maximum working speed is 875 r.p.m. The tractive force during starting and up to about 21 m.p.h. is 31,500 lb. The continuous tractive force is 12,400 lb. at 64 m.p.h. and 8,400 lb. at 90 m.p.h.

The series of tests carried out during September 1951 form part of an extensive testing program covering locomotives of various types undertaken by the Testing Committee under the direction of R. A. Riddles, member for mechanical and electrical engineering of the Railway Executive.

Object of Tests

The principal object of these tests was to obtain performance and efficiency characteristics, not only for operational purposes in respect to the locomotive, but also for comparison with those of steam locomotives, with which comprehensive tests are at present in progress.

The method of testing adopted was an adaptation of the controlled road-testing system as previously developed by the former Great Western for steam locomotives. In the adaptation of this method of testing the locomotive was worked for relatively long periods in selected controller notch positions while records were taken of the available pull and power at the drawbar with respect to speed and oil consumptions. An analysis of the records thus established enabled the characteristics to be determined. Oil-flow meters of the positive displacement type were used to record the fuel oil supplied to the burners. The resulting particulars were registered electrically in the dynamometer car on the distance- and time-base records and also magnetic counters were actuated.

Oil temperatures were recorded and on each test the oil was sampled for determination of calorific values and other particulars, including specific gravity at working temperatures. The output of the main generator was measured by the metering equipment in the dynamometer car. Gas temperatures before the turbine and turbine speeds were checked at short intervals during each test.

Test Arrangements

It was possible to carry out the tests with this locomotive when operating in ordinary revenue-earning fast passenger trains without interfering with normal running schedules. The test runs were made between London (Paddington) and Plymouth (North Road), a total distance of 225.7 miles.

For the runs from London to Plymouth the train selected was the 3:30 p.m. express, slipping one coach at Heywood Road Junction, 94.5 miles, and stopping at Taunton, 143 miles, and Exeter (St. David's), 173.75 miles. The scheduled running time for the entire journey of 225 miles was 259 min., equal to 52.1 m.p.h. Two trips were made with this train.

From Plymouth to London, over the same route and distance, the train was the 7:15 a.m. express, stopping at Totnes, 23.1 miles; Newton Abbot, 31.9 miles; Teignmouth, 37 miles; Dawlish, 39.8 miles; Exeter, 52 miles; Taunton, 82.8 miles, and Westbury, 130.1 miles. The actual scheduled running time was 275 min. for the

complete journey, or 49 m.p.h. Two trips were made with this train. On the last trip the test was not completed because of a slight defect in the dynamometer car.

Train loads, London to Heywood Road Junction for Westbury, were 445 tons in 12 cars; Heywood Road Junction to Exeter, 400 tons in 11 cars, and Exeter to Plymouth, 270 tons. The train loads are in tons of 2,000 lb. From Plymouth to Newton Abbot train loads were 255 tons in seven cars; Newton Abbott to Exeter and on to London, 440 tons in 12 cars.

The lighter train loads between Exeter and Plymouth are normal to this section because of the extremely severe grades which are two per cent or more in parts of the section.

Between Plymouth and Totnes the gradients vary from 2.4 to 1.1 per cent. Between Exeter and Taunton heavy grade sections have to be traversed varying from 1.25 to 0.45 per cent and 0.19 per cent.

Test Results

The overall average results covering three complete trips—two from London to Plymouth and one return trip from Plymouth to London—are given in Table 1. The average speeds are based on a mileage of 225.2 miles and on the actual running time. The average drawbar horsepowers are based on the average drawbar pull and the mean running time speeds. The fuel oil consumption per drawbar-horsepower-hour are computed from the total weight of oil used and the actual time under power.

Performance

The performance of the locomotive is illustrated in the graph which shows the drawbar characteristics obtained. In this the equivalent drawbar pull is directly related to speed, controller notch, heavy fuel-oil consumption and efficiency, corresponding to the drawbar characteristics for steam locomotives, with which a comparison can therefore be made. It may be noted that maximum operating efficiency of the gas-turbine locomotive is obtained at high power output as opposed to a rate of working of about two-thirds of the maximum in the case of a steam locomotive.

The overall thermal efficiencies of this locomotive are given in the graph referred to above for all rates of working. However, the following data respecting the overall efficiencies attained during the test runs between London and Plymouth are of interest. Before considering these results, the efficiency of the power unit consisting of the gas turbine and electric generator may be noted. A graph shows the power unit efficiency based on the generator output and the estimated efficiency of the gas turbine as it would be measured at the generator coupling. It will be seen that the thermal efficiency of the power unit, including the generator, varies between the limits of 10 to 12.2 per cent for powers from 1,000 to 2,000 hp. This graph is based on a fuel oil having a calorific value of 18,630 B.t.u. per lb., which is the average value of four samples and an ambient air temperature of 66 deg. F.

The oil and energy consumptions and the corresponding overall thermal efficiencies for the three test runs are shown in Table 3.

Comparison with Steam Power

The steam locomotives used for main-line express passenger service on the Western Region comprise two classes of 4-6-0 type four-cylinder single-expansion locomotives known respectively as the Castle class and King class, having rated tractive forces of 31,625 and 40,300 lb.

In 1948 extensive trials were conducted by the Railway Executive with several of the principal locomotive classes in use on British Railways, and certain of these trials were carried out with the King class of the former Great Western Railway.

The first engine of this class to be built at Swindon was exhibited in the United States at Baltimore on the occasion of the Baltimore & Ohio Centenary Exhibition in 1927.

Results of Trials

The overall results of trials carried out when operating express trains between London and Plymouth with King class engine No. 6018 during the locomotive tests of 1948 are summarized in Table 4. Columns 1 and 2 cover trips from London (Paddington) to Plymouth (North Road) and columns 3 and 4, those in the opposite direction.

The overall thermal efficiencies are appreciably lower than for the gas-turbine locomotive. However, in this connection it may be stated that the running conditions prevailing were very unfavorable because of numerous delays encountered. For instance, for trip No. 3 there were nine slow-downs due to signals and one special stop, while, in the case of the other trips, from five to eight slows or signal checks were encountered. These detentions would, naturally, adversely affect coal consumptions, and, hence, thermal efficiencies.

TABLE 2—CHARACTERISTICS OF THE FUEL OILS BURNED

	Heavy	Light
Specific gravity, API (approx.)	18	38
Flash point (closed), deg. F.	216	198
Pour point, deg. F.	45	Below 15
Ash, per cent	Less than 0.01	Nil
Sediment, per cent	0.02	Nil
Water content by volume, per cent	Nil	Nil
Gross calorific value (average of four samples), B.t.u. per lb.	18,630	19,555

TABLE 3—OVERALL OIL AND ENERGY CONSUMPTIONS AND EFFICIENCIES

	London to Plymouth		Plymouth to London
Trip	1	2	3
Average speed, m.p.h.	53.6	53.7	50.2
Average db. hp.	721	831	736
Oil, heavy and light, lb. per hp.-hr.	2 05	1.93	2.17
Energy consumption, B.t.u. per hp.-hr.	37,085	35,900	40,500
Overall locomotive thermal efficiency, per cent	6.7	7.1	6.3

TABLE 4—OVERALL PERFORMANCE OF STEAM LOCOMOTIVES BETWEEN LONDON AND PLYMOUTH

	London to Plymouth		Plymouth to London	
Trip	1	2	3	4
Distance, actual, miles	225.1	225.1	225.8	225.8
Time running, min.	282.4	288.9	287.8	282.6
Average speed, m.p.h.	47.8	46.8	47.1	48.0
Average drawbar pull, tons (2,240 lb.)	2.5	2.2	2.18	2.12
Average drawbar hp.	600	620	610	605
Coal, lb. per hp. hr.	3.81	3.64	3.66	3.86
B.t.u. per hp. hr.	52,600	49,400	49,200	53,200
Overall thermal efficiency, per cent	4.84	5.16	5.17	4.87
Calorific value coal as fired, B.t.u. per lb.	13,810	13,570	13,430	13,520

"Knights of the Round Table"...

They Do Yard Paper Work Faster

New work unit helps Southern Pacific clerks at Taylor yard, Los Angeles

Speeding and simplification of the work performed by yard office clerks handling waybills at the Southern Pacific's Taylor yard in Los Angeles are accomplished by a new "round table" work unit recently installed. This brand-new kind of unit was conceived and designed by Terminal Superintendent G. J. Matt and his Taylor Yard staff, in conjunction with the SP's Methods and Standardization research group. It was built at the company's shops in Los Angeles. It has proved so successful in the six months it has been in service that the SP is reported to be considering installing similar units in other yard offices on the system.

The "round table" has two principal components:

(1) a stationary outer ring, approximately 24 inches wide, which contains 8 work stations,

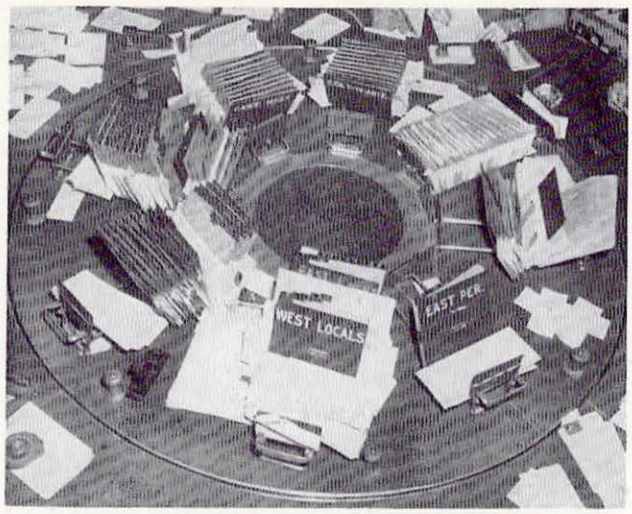
(2) a revolving center, approximately 72 inches wide, with 8 sorter racks, which contain all outbound waybills organized by direction of movement.

Each work station is equipped with a drawer for pencils and supplies, a telephone jack, a lightweight head-set unit, a telephone dial, and a new swivel-type posture chair on large casters. The table has an overall diameter of approximately 10 feet.

Prior to the installation of the "round table," pigeon-hole racks were used for sorting waybills, with a separate rack for each route served by Taylor yard. Each clerk had a desk, equipped with a conventional telephone handset. This arrangement necessitated considerable walking between desks and pigeon-hole racks by the individual clerks.

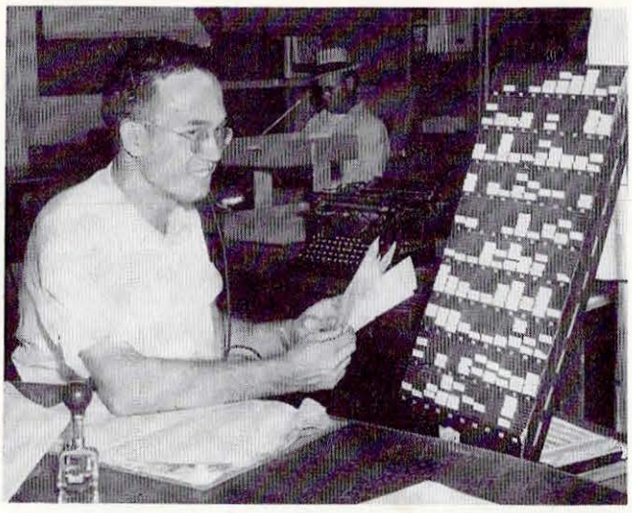
The New Arrangement

Under the new arrangement each clerk's desk is a part of the "round table." The old pigeon-hole racks have been supplanted by eight sorters (5 with 100 separators and 3 with 10 separators) placed on the revolving center section. A spring clip at the center holds the sorters in



"Aerial view" of the revolving center of the table, showing the clips holding the sorter racks, and the knobs used to turn the section. The entire table is covered with Masonite with aluminum edging.

A clerk checks the consist of an inbound freight against a revolving customer location file. The diagram on the easel near the clerk's hand lists cars to be held for inspection, or for other reasons.



Waybills are checked against a self-correcting diversion board designed by the SP's office of methods and procedures.

Waybills for an outbound train are classified according to train direction in specially designed sorter-racks which are easily removable from the revolving center of the table.

place when they are not being used, yet permits their easy removal and replacement. A clerk working with a particular group of waybills needs only to revolve the center portion of the table until that group is in front of him, remove it, and complete his work. Communication between the clerks is simple and direct, with a minimum of wasted motion, making it possible for the men to process a greater number of waybills in less time.

Other work equipment—such as typewriters, a revolving customer-location file, and a "self-correction" diversion board—are spaced around the perimeter of the table within easy reach of the clerks who use them.

"Self-Correcting" Diversion Board

The "self-correcting" diversion board was designed by the SP's Office of Methods and Standardization and likewise was built at the Los Angeles general shops. It contains 10 separate slots for each of the last two digits of a car number in sequence, beginning with "00" and ending with "99." A small index card is prepared for each car involved immediately upon receipt of each diversion order, bearing the car initial and number in large figures at the top and the file in slots in the board by the last two digits of the car number. Each outbound waybill is checked against this board, and as each diversion is accomplished, the card is removed from the board and posted in the diversion book adjacent to the order. Thus, eye-travel time is reduced and possibility of error minimized as compared with the blackboard system formerly used.

Consideration is being given to installation of similar diversion boards at other yards where numerous diversions are accomplished.

Upon receipt of inbound waybills at the yard office, they immediately go to a key-punch operator who prepares a punched card containing all essential information for use on automatic business machine equipment. After being checked against the punched cards, the waybills are sorted by outbound destinations in the sorters at the "round table," and are then processed in the usual manner as outbound trains are made up.

These boxed-heart Douglas fir ties were Vapor-Dried for installation in test track on the Union Pacific. The absence of checking and splitting is readily apparent.

Tests Point Way to . . .

Longer Life for Boxed-Heart Douglas Fir Ties

Research program is aimed at comparing the performance of such ties treated by the Vapor-Drying process with others air-seasoned and treated in conventional manner

Under a cooperative research program arranged between the Taylor-Colquitt Company and the Oregon Forest Products Laboratory, work was begun in 1950 to determine the applicability of the Vapor-Drying process to the boxed-heart Douglas fir ties available on the West coast. Boxed-heart ties were selected for the test because a large proportion (estimated at approximtely 40 per cent) of Douglas fir ties are of this type.

Such ties, having the pith situated entirely within the four side faces, are notorious for their tendency to check and split. Furthermore, since the railroads are having to accept more and more boxed-heart ties as the cutting of the second-growth timber increases, the potentialities for benefit from tests on this type were considered attractive.

The procedure for seasoning and treating the test ties, and the results obtained, have been described in a report prepared by W. R. Cantrell, chemist of the Taylor-Colquitt Company, Spartanburg, S. C. The early work, explained Mr. Cantrell, was carried out in a 1-ft. by 10-ft. experimental treating cylinder which was converted to the Vapor seasoning and treating process. This plant was later expanded by the installation of a pilot plant having a 3-ft. by 10-ft. cylinder, which began operation in 1952.

Vapor-Drying vs. Air Seasoning

The first work on boxed-heart Douglas fir was carried out with the cooperation of the Southern Pacific and comprised a series of tests for comparing the results obtained in Vapor-Drying and treatment of such ties with those obtained when the ties were handled by the conventional air-seasoning process. For this work, 10 green boxed-heart 7 in. by 9 in. by 18 ft. Douglas fir timbers were obtained and two 8-ft. crossties were cut from each of them. One group of the 8-ft. crossties were placed in the air-seasoning yard of the Southern Pacific's treating plant at Eugene, Ore., for air seasoning. After nine months of air seasoning, these ties were placed in a commercial charge that had been undergoing air seasoning for the same length of time, and were processed. The other group of 10 green ties were Vapor-Dried and treated within a period of four to six weeks after they had been cut.

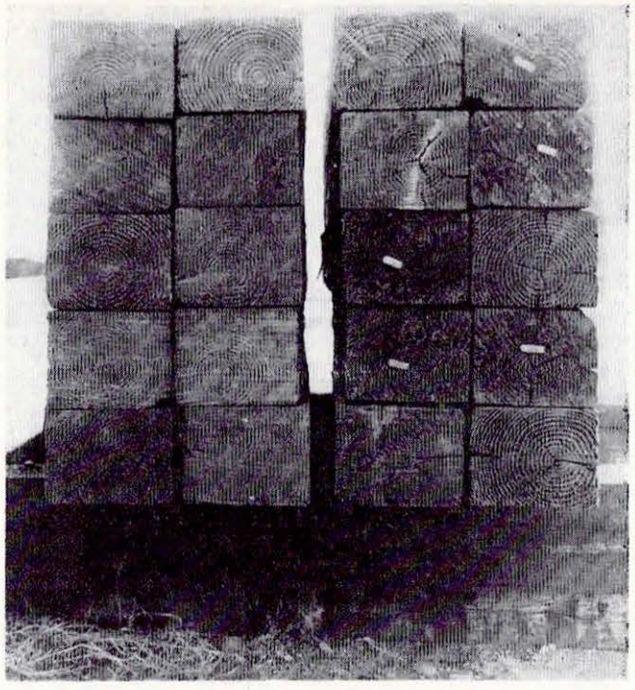
The accompanying table, prepared by Mr. Cantrell, shows a comparison of the processing schedules used and the results obtained on these two groups of ties. The author explained the data as showing that the Vapor seasoning and treating process required slightly less time than that entailed by the conventionally treated ties even after they had been seasoned for nine months. He also called attention to the fact that the Vapor-Dried ties retained appreciably more preservative and that the average depth of solid black penetration was greater in spite of the fact that these ties at the time of treatment were about three per cent higher in moisture content than the air-seasoned ties. In addition, he noted that the checking and splitting of the Vapor-Dried ties was negligible compared to that developed in the air-seasoned pieces.

These ties have been placed in track in the desert country near Yuma, Ariz. It is felt that the climate in that locality should give an excellent comparison between the performance of the two groups of ties under rigorous conditions.

A large scale test, comprising 100 green, boxed-heart Douglas fir crossties, was recently carried out for the Union Pacific using the same Vapor-Drying cycle as that shown in the table except that the drying time was increased about two hours because the initial moisture content of the ties was about 43 per cent. The total cylinder time was 13½ hr. The net retention was 9.5 lb. per cu. ft. and average depth of penetration was 0.9 in.

Determination of preservative penetration was made by borings obtained from two faces of each of the 100 ties. According to Mr. Cantrell, 99.5 per cent of these borings showed penetrations of ½ in. or more. Ninety-two per cent of the borings showed a penetration of ¾ in. or deeper.

These ties have now been installed in test track. "Because of the reduced checking and splitting and more uniform and deeper penetration of preservative," said Mr. Cantrell, "it is expected that they will show even longer service life than has been obtained even with the better grades of side-cut timber which have been used in the past."



These 20 test ties were installed on the Southern Pacific. The picture was made three days after the air-seasoned ties (right) were treated. During the time they were being air-seasoned prior to treatment the Vapor-Dried ties (left) were exposed to the same weather conditions and for the same time after they had been Vapor-Dried and treated.

PROCESSING SCHEDULE AND TREATMENT RESULTS FOR BOXED-HEART DOUGLAS FIR TIES DRIED BY AIR SEASONING AND MATED TIES PROCESSED BY VAPOR-DRYING

	Air-Seasoned	Vapor-Dried
Seasoning:	9 mo. at Eugene, Ore.	5½ hr. at 270 deg.
	Boultonized 5 hr., 190 deg. F. at 25 in. vacuum	. . .
Impregnation with Creosote-Petroleum Solution:		
Initial air	25 p.s.i.	10 p.s.i.
Preservative pressure	150 p.s.i.	120 p.s.i.
Preservative pressure duration	2 hr. 35 min.	3 hr. 30 min.
Preservative temperature	190 deg. F.	185 deg. F.
Final vacuum	2 hr. at 23 in.	1 hr. at 25 in.
Total cylinder time	11.5 hr.	11.4 hr.
Retention of preservative	7 lb./cu. ft.	9-10 lb./cu. ft.
Peneration of preservative (inches):		
Solid black penetration	0.4	0.9
Solid black plus skip penetration	1.0	1.1
Moisture content before seasoning	37%	37%
Moisture content at time of treatment	15%	18%

A supervisor of service looks for torn or soiled shades. Such oversights might be objectionable to passengers.

This cracked emblem will be replaced before the "Spirit" leaves the yard.

How the PRR Is Improving Passenger Train Service

Regular inspection of trains enables railroad to correct conditions potentially or actually objectionable to patrons

A corps of "super-critical travelers" have been put to work on many of the Pennsylvania's leading passenger trains, ferreting out possible sources of passenger annoyance before they ever occur and pointing up areas in which revenue-attracting extras can be used to advantage.

This activity is dictated by the belief that hindsight runs a poor second to foresight in transporting passengers by rail and keeping them happy en route.

Officially, the "travelers" are known as supervisors of service. Their job is to observe conditions which don't meet the highest service standards—and to see that they are corrected. From their work, the Pennsylvania expects and is getting a substantial hand in its efforts to further refine on-train and terminal services involved in its passenger operations.

In working to enhance the attractiveness to customers of PRR service, each of the supervisors holds the responsibility for coordinating the duties of the hundreds of persons required to prepare, operate and serve on the trains under his care. A higher degree of continuity of effort and function of the employees involved is thus obtained.

By assigning each supervisor to a specific train, the PRR's service observation program can provide for a minimum of two trips in each direction by each supervisor every week. The supervisors not only are charged with correcting deviations from prescribed practices or equipment, but also with recommending changes in those practices and that equipment. They have the authority, moreover, to carry the case for their changes to the highest official levels for study.

Eight service supervisors are regularly assigned to the following Pennsylvania blue ribbon trains: The "Broadway Limited" and the "General-Trail Blazer," both between New York and Chicago; the Morning and Afternoon "Congressionals," linking Washington with New York; the "Spirit of St. Louis," running between New York and St. Louis; the "Red Arrow," between New York and Detroit; the "Cincinnati Limited," between New York and Cincinnati; the "Pittsburgher," between New York and Pittsburgh; and the "Liberty Limited," running between Washington-Baltimore and Chicago. Two additional supervisors are on roving assignments, and all ten men report directly to a general supervisor of service.

Selected from personnel of the Pennsylvania's traffic and operating departments, the supervisors inspect the trains to which they are assigned both before and after trips, as well as making continuous checks en route while accompanying the equipment. Cleanliness, riding quality, handling and platforming of trains by engine crews, and handling of passengers by both train and dining car personnel are among the passenger comfort points checked.

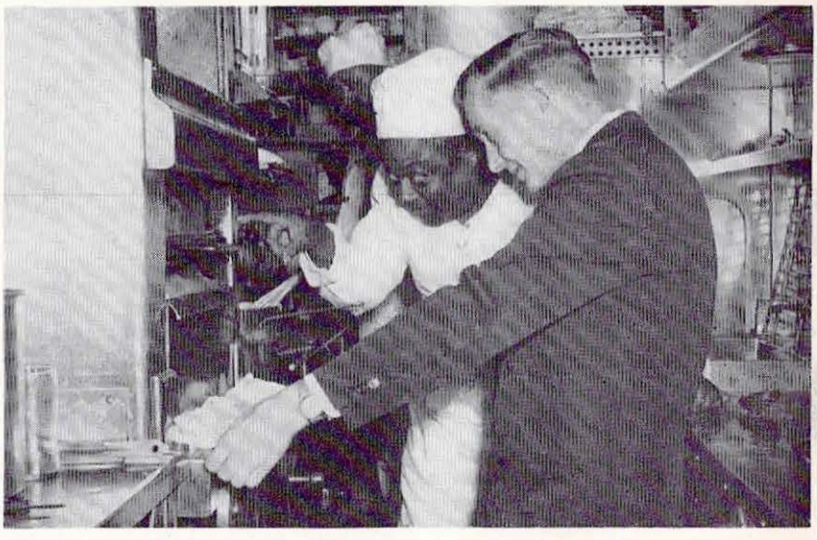
Wherever possible, the supervisors attempt to work through the people who can most directly make any corrections needed to maintain service standards. If the cars are improperly cleaned, for example, a supervisor deals directly with the cleaning foreman. But if it develops that correction requires additional personnel, use of different tools or equipment, or employment of some other material, the supervisor takes the matter to the level of authority necessary to get it corrected.

Rough handling of a train or discourtesy by an employee are cured just as quickly after reports of the incidents are made to the road foreman of engines, a traimaster or, if necessary, the superintendent.

At the end of each trip, the service supervisors report what they have found wrong during the trip and what

A service supervisor sees a repair crew adjust air conditioning machinery.

T. J. Costello, general supervisor, heads the Pennsylvania's service organization.



Chef on the "Spirit of St. Louis" shows oven to the inspecting supervisor.

they have done, or what they believe can be done, to improve what has been found faulty. Copies of the report go to the division superintendent, the master mechanic, the trainmaster and, if Pullman equipment is involved, to the superintendent of the Pullman Company. In addition, the general supervisor of service and top operating and traffic officers of the Pennsylvania get monthly overall reports from the supervisors.

The supervisors make every effort to get additional "riders'-eye view" facts about PRR service while aboard their trains. They circulate through the train, alert for comments, criticisms and suggestions from passengers. They welcome, but in general do not initiate, conversations with passengers who spot their only "uniform"—a small metal badge worn over the breast pocket of the suit coat for identification. The supervisors are qualified to answer most of the questions the average passenger asks. When complaints are made by the passenger, they are remedied on the spot if that is possible—with a resulting good will on the part of the passenger.

Similarly, the service supervisors are always on the alert for suggestions and criticisms from train crews on such trips. When a suggestion or criticism from a train crew member bears fruit, the supervisor makes it a point of showing members of the crew the results. When action is impractical, the person or crew making the suggestion is told why no action can be taken. In either case, the company employee who offers a suggestion is left with the feeling that his ideas are both welcomed and appreciated.

When unsatisfactory conditions are remedied, the service supervisors are as willing to compliment those who have done the work as they are to criticize shortcomings.

Since the service supervisor program went into effect, "definite and noticeable" effects upon the service, the equipment and the morale of road and terminal employees have been observed, according to a PRR spokesman. Value of the program to the company as both a public relations and employee relations vehicle is described as "considerable—and growing."

(Continued from page 18)

Principal question about that angle cock: Was it closed at the time of the accident and, if so, how did it get that way?

As this issue went to press, the I.C.C. hearing was still on. Commissioner Patterson was pursuing the possibility that vibration may in some way have brought this angle cock into contact with the end casting of the car. The theory of this approach was that the contact could have caused the angle cock to close, making the brakes on the rear 13 cars inoperative from the locomotive.

The earlier hearing by the Senate committee turned to the more dramatic possibility of sabotage—i.e., the angle cock was closed by some "unauthorized person," presumably during the stop at Baltimore, Md. This line of questioning seemed to interest the senators, and the record of their two-day hearing was turned over to the F.B.I. That agency has been conducting its own investigation.

Whatever the cause, one thing remained certain: There was no application of brakes back of the third car of the "Federal" that morning, and the train plowed into Washington's Union Station at about 35 miles per hour. The GG-1 locomotive leaped into the concourse, dragging the train with it, and would have smashed into the main waiting room had not the concrete floor given way.

There were no fatalities, but some 50 persons on the train were injured. The presence of a locomotive in the station's basement presented the biggest problem, and it finally had to be removed piece-by-piece. The job was completed late January 27.

First trouble on this January 14-15 run of the "Federal" occurred before the train reached New Haven, Conn. The train lost nearly an hour between Providence, R.I., and New Haven because of brake difficulties. Conductor Ralph E. Ward and Engineer William H. Matta told this story:

At Kingston, R.I., Mr. Ward noticed that brakes on the last two cars in the train were sticking. He signaled the engineer and the train was stopped. Attempts to release the sticky brakes by bleeding were unsuccessful until Mr. Matta walked along the train and found an angle cock closed at the rear of the third car. He opened it and was then able to get the train under way. He made a "running test" and continued without mishap to New Haven.

At New Haven, Mr. Matta left the train but did not report the angle cock difficulty. He said he considered the matter fixed. Mr. Ward did report to car inspectors about the sticky rear-end brakes, but their inspection found nothing out of line.

The train next proceeded to New York, and at Pennsylvania Station the regular car inspections showed nothing out of order.

Engineer H. W. Brower took the train from New York to Washington. He left New York 36 minutes late, and on a "running test" got "normal" reaction from his brakes. This remained true as far as Baltimore, and the brakes worked "fine" there. That stop was for "four or five minutes."

Leaving Baltimore, Mr. Brower said he had no occasion to use his brakes until he reached the Ivy City Engine House outside of Washington. No "running test" had been made upon leaving Baltimore. Most favorable aspect on the signal at Ivy City is "approach," which calls for "medium speed" of 30 miles per hour on the PRR.

Reversing Futile

After two air reductions at this point "I knew right away I didn't have brakes," Mr. Brower said. He said he then "gave it everything I had" and still nothing happened. He began sounding his horn as he approached the station, but, as Commissioner Patterson pointed out, "You can't stop them very well with those horns."

Mr. Brower said he approached on track 41, hit the crossover to track 16, and headed into the station at about 35 m.p.h. Among other things, he tried to reverse his engine but it "had little effect," he said.

After the accident the angle cock at the rear of the third car was found partially closed. There was disagreement among railroad witnesses as to whether it was 50 per cent closed or 90 per cent. They did agree that vibration alone would not cause an angle cock to move toward the closed position once it is open and locked.

Tests made on the cars after the accident indicated that all brakes on the train were operative. Standard rack tests were conducted on the three cars too badly damaged to be tested in regular operation.

These subsequent tests indicated little or no leakage in the rear cars of the train. Thus, assuming the angle cock was closed at Baltimore, there would have been sufficient air to keep brakes inoperative during the 35 minute run to Washington.

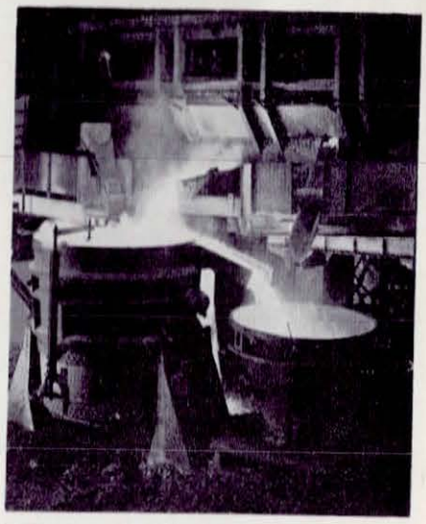
Brakes on the three head end cars apparently worked all right, but were not enough to stop the 16-car train. The brakes on these cars were found in "badly burned" condition after the accident.

The I.C.C.'s investigation of the Washington accident is docketed as Ex Parte 184. Examiner E. J. Hoy and Safety Inspector H. R. Longhurst, have assisted Commissioner Patterson in conducting the hearing.

CAR SURPLUSES, SHORTAGES

Average daily freight car surpluses and shortages for the week ended January 24 were announced by the Association of American Railroads on January 29 as follows:

	Surplus	Shortage
Plain Auto	17,482	776
Auto Box	219	18
Total Box	17,701	794
Gondola	6,596	117
Hopper	36,003	55
Covered Hopper	468	0
Stock	6,393	0
Flat	443	111
Refrigerator	2,960	0
Other	168	53
Total	70,732	1,130



THE 80 MILLIONTH TON of steel produced by the Inland Steel Company at Indiana Harbor, Ind., was poured on January 15 from one of the company's new open-hearth furnaces. Here the white hot steel spills from the furnace into a 275-ton thimble-shaped ladle. The stream flowing into the smaller ladle is "slag" which floats on top of the heavier steel and carries off impurities.

More Cases of Suspected Sabotage Are Reported

The possibility that sabotage or "tampering" may have been the cause of the January 15 accident in which the Pennsylvania's "Federal" ran into the concourse of the Washington, D.C., Union Station (*Railway Age*, January 19, page 18, and January 26, pages 14-15 and 55), has been given added force by four subsequent reports of suspected sabotage from three widely scattered railroads.

Two of the reports have come from

the New York, New Haven & Hartford, which operates the "Federal" jointly with the PRR, and both have concerned partially closed angle cocks. In one case, a half-shut angle cock was discovered on the fifth car of the NH-PRR Boston-Washington "Colonial," when it stopped at New Haven, Conn., on January 21. In the other, an angle cock on the second car of the New Haven's Boston-New York "New Yorker" was found to be partly closed when the train made its regular stop at Providence, R. I., on January 23. It was the finding of a partially closed angle cock between the third and fourth cars of the "Federal" which first gave rise to the idea that sabotage might have caused the brake failure which made it impossible to stop that train at Washington.

Also on January 24, the Baltimore & Ohio and the Grand Trunk Western reported obstructions on tracks under circumstances which lent credence to the possibility of sabotage. Both were discovered in time to avert derailment of passenger trains. In the B&O case, the obstruction was a cross-tie, the weight of which was said to rule out the possibility of its being there except by deliberate design. The GTW obstruction was a rail, one end of which was reported placed on a block of wood to avoid actuating the signal system.

Car-Float Employee Covered By Harbor Workers Act

The United States Supreme Court has ruled that a railroad employee working on a car float is covered by the Longshoremen's and Harbor Workers' Compensation Act—not the Federal Employers' Liability Act.

The ruling was embodied in a 5-to-4 opinion announced by Justice Reed in a case docketed as No. 60, *Pennsylvania Railroad Company v. Charles E. O'Rourke*. It came up, on the PRR's appeal, from the United States Circuit Court of Appeals for the Second Circuit, which held that the Liability Act applied, thus reversing a district-court decision in favor of the Harbor Workers' Act.

Mr. O'Rourke was injured while at work on a PRR car float in Harismus Cove, Jersey City, N.J. His work involved the releasing of hand brakes, so that cars could be pulled off the float by a locomotive. The Circuit Court of Appeals held that the Liability Act applied because it covered "railroad employees injured while engaged in railroad work on navigable waters."

In reversing this finding to uphold the District Court, the Supreme Court had this to say: "We are clear . . . that the emphasis on the nature of respondent's duties here misses the mark. The [Harbor Workers'] statute applies, by its own terms, to accidents on navigable waters when the employer has any employee engaged in maritime service."

The dissenting opinion came from Justice Minton, with whom Chief Justice Vinson and Justices Black and Clark agreed. "With the imagination of the court's opinion," Mr. Minton said, "a train crew, while crossing a bridge with its supports in a navigable stream, would be employed in maritime service. We would treat this railroad employee as being in law what he was in real life, a railroad brakeman . . . subject to the Federal Employers' Liability Act . . ."

"Non-Sched" Air Fares Just Above Railroad Coach Basis

"Large, non-certificated, non-scheduled domestic air lines" realized in 1951 an average revenue per passenger-mile of about 2.93 cents, less than 5 mills above the railroad average of 2.47 cents for coach passengers other than commuters.

The comparison was made by the Bureau of Transport Economics and Statistics of the Interstate Commerce Commission in the latest issue of its "Monthly Comment." The "non-sched" figure is an estimate for the first nine months of 1951, while the rail-coach figure is a 12-months average.

The bureau's compilation also showed that the "scheduled domestic air lines" had an average revenue per passenger-mile of 5.6 cents in 1951, as compared with the railroads' parlor and sleeping car average of 3.27 cents. The latter does not include charges for Pullman space, and the bureau noted that the Pullman Company's average revenue per passenger-mile in 1951 was 1.14 cents.

Preliminary figures indicated that Class I intercity bus lines realized average passenger-mile revenue of 1.93 cents in 1951. This was above the 1949 average, as were both railroad averages. Meanwhile, 1951 averages of the air lines were below comparable 1949 figures.

Canada to Investigate Grade Crossing Accidents

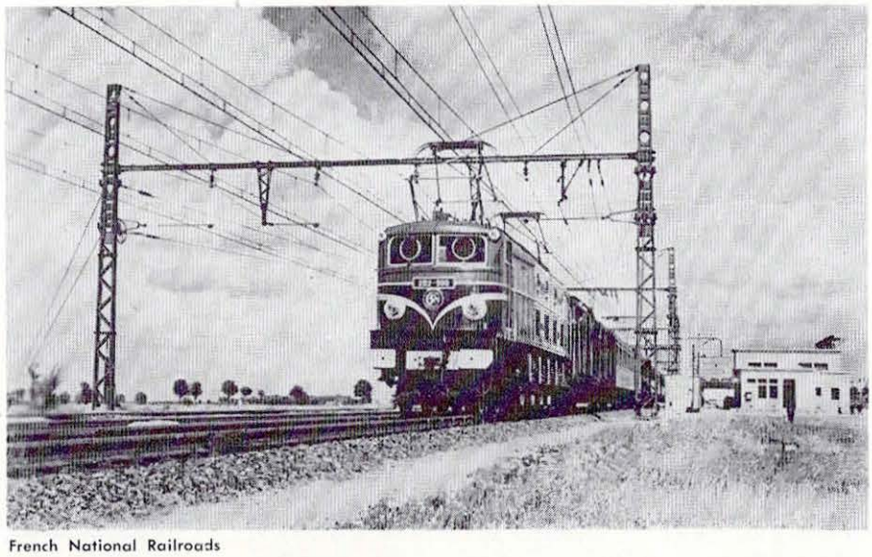
The Canadian federal government has decided to launch a countrywide probe of railway-highway crossing accidents; the Board of Transport Commissioners has been instructed to investigate all phases of the problem with a view to reducing the number of fatal accidents.

There is, according to Transport Minister Lionel Chevrier, a railway grade crossing fund to which the federal government has contributed substantially. It may be, however, Mr. Chevrier said, that certain aspects of the present arrangement are not operating well, which has resulted in a tremendous number of crossing accidents in recent months.

The inquiry would take place in each of the 10 provinces and would look into such details as speeds of trains, visibility, automatic signal systems, mechanically operated gates, under and overpasses and so on, as means of reducing the grade crossing accident toll.

Erie to Award College Scholarships Each Year

The Erie will award five $1,000 college scholarships each year to children of its employees, Paul W. Johnston, the road's president, has announced. Each scholarship will be worth $4,000, as it will provide a full four-year grant of $1,000 annually to the five individuals who qualify. When the program is fully under way, 20 scholarships will be in force each year. Mr. Johnston said winners will be chosen by a schol-



French National Railroads

THE "MISTRAL" now covers the 679 miles from Paris to Nice in 10 hours, 54 minutes, compared with a former schedule of 15 hours, 30 minutes. Electrification of the Paris-Lyons portion of the run, 319 miles, is credited with being the biggest single factor in the schedule reduction.

arship committee composed of persons having no official connection with the railroad.

Awards will be made on the basis of competitive examination, scholastic performance, character and other qualities. Winners may select their own four-year course of study in any accredited college or university. The parent must have at least 10 years continuous Erie service and his average earnings from Erie service must be under $7,500 a year. Children of deceased or retired employees are eligible if the parent had 10 years of continuous service and was an Erie employee at death or retirement.

Waybill Studies

Additional waybill studies issued by the Bureau of Transport Economics and Statistics, Interstate Commerce Commission, include:

Statement No. 5250, Mileage Block Distribution of Traffic and Revenue by Commodity Class, Territorial Movement and Type of Rate, Products of Mines—All Terminations in 1951.

Statement No. 5252, Tons of Revenue Freight Originated and Tons Terminated by States and by Commodity Class — Terminations in 1951.

Statement No. 5257, Distribution of Petroleum Products by Petroleum Administration Districts—Terminations in Second Quarter 1952.

D.T.A. Reports on Its Fast-Write-Off Program

From the inception of the government's accelerated tax amortization program (provided for in the Revenue Act of 1950) until January 15, the Defense Transport Administration has favorably recommended and the Defense Production Administration has issued certificates of necessity for fast write-offs of transport and storage facilities valued at approximately $3.7 billion.

This was announced January 28 by Robert R. Hendon, director of D.T.A.'s Tax Amortization and Defense Loans Division. The Hendon statement included the accompanying list of D.T.A.'s tax amortization recommendations for railroad facilities.

Facility	Number	Dollar Value
Box Cars	91,276	$ 499,116,499
Gondola Cars	62,766	362,565,749
Hopper Cars	68,904	376,488,563
Refrigerator Cars	14,069	123,988,783
Tank Cars	16,642	151,095,343
Other Freight Cars	12,377	80,614,308
Locomotives	8,242	1,347,348,488
Yard Facilities	70 (Applications)	80,636,060
Miscellaneous Road & Terminal Facilities	384 (Applications)	171,295,606

Radio to Grab Car Numbers

Walkie-talkie portable radio sets used by car checkers for transmitting car numbers to recording devices in the yard clerk's office, have been installed by the St. Louis-San Francisco in Lindenwood and Ewing Avenue yards in St. Louis. The installation, made on an experimental basis, is proving to be successful, and may be installed elsewhere on the railroad.

Under the new system, a car checker is equipped with a portable sending and receiving radio set, powered by a two-cell wet battery, having a power output of a half-watt and a range of approximately one mile. The portable unit is a standard Littlefone manufactured by Hallicrafter Corporation. It is strapped to the checker's back, and a small hand microphone and ear piece are connected to it. Total weight of the unit is 10 lb. The checker thus equipped stands at one end of the yard as a train comes in, and calls off numbers on the cars as they pass by. Under the old system, he had to wait until the train had stopped, walk the entire length of the train, and write down numbers and letters of each car.

As he talks, the checker depresses a small button inset in the top of the microphone. This automatically, via radio, activates a wire recorder in the clerk's office, and the consist of the train is recorded for later transcription. The equipment used at the two base radio stations at Lindenwood and Ewing avenue consists of standard Bendix receiving and sending units. The wire recorders are Dictascribers.

Each of the base stations operates on a different frequency, to prevent interference. Three portable units, set at the same frequency, are used in conjunction with each station, along with two wire recorders. Thus, if a clerk is busy transcribing from one wire recorder, he can connect his receiver to the other recorder. Batteries in the walkie-talkie sets are recharged after three hours use. Usually, only one or two of these walkie-talkies are in use at any one time, the batteries of the third being on charge.

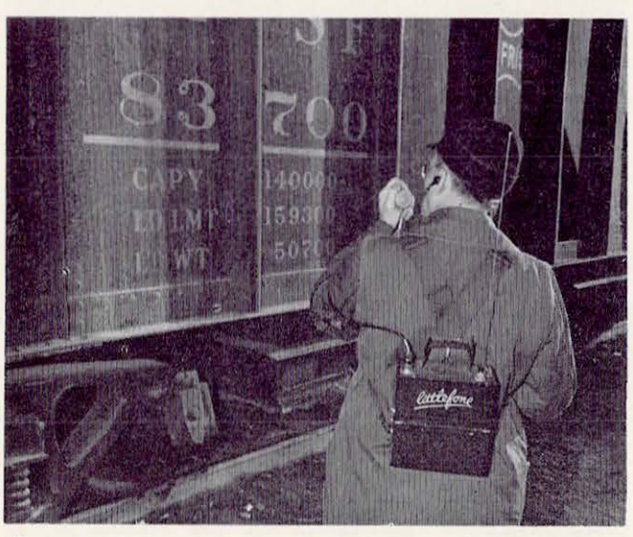
UP TO CONVERT GAS TURBINE TO BURN PROPANE

One of the General Electric gas turbine electric locomotives currently in service on the Union Pacific will be converted to burn propane gas on an experimental basis, "in an effort to find the most economical fuel for the locomotives."

No details of the conversion have been announced. At present six of the turbine units are in service between Green River, Wyo., and Ogden, Utah, burning low-grade "Bunker C" fuel oil. Nineteen similar units are on order from G. E.

WP to Mark 50th Birthday With Special Cachet

On March 3, the Western Pacific will mark the 50th anniversary of the company's incorporation. A special cachet, highlighting progress of the road over the past half-century, will be issued by the road and cancelled by



The car checker uses his walkie-talkie portable radio to transmit car numbers to the recorder in the clerk's office.

Flanking the receiver and microphone (center), are two wire recorders on which train consists are recorded.

the San Francisco post office on that date.

Philatelists are invited to send a self-addressed stamped envelope (3-cent stamp) to the WP's department of public relations, 526 Mission street, San Francisco 5, on or before February 27. The cachet will be affixed and the post office will cancel the envelope for mailing on March 3.

OVERSEAS

Portugal. — This country has received a credit from the Export-Import Bank to finance in part construction of a new railroad in Africa, from the Rhodesias to the port of Laurenco Marques in Mozambique. The $17,000,000 credit will be used to cover cost of U.S. materials, equipment and services for that portion of the new line to be constructed in Mozambique. It will be used for purchase in the U.S., and transportation to the project, of construction equipment, steel, rail and track fittings, motive power and rolling stock and miscellaneous items for constructing and equipping about 185 miles of line. Track will be laid from the Limpopo river, where it will join an existing line from Laurenco Marques, in a northerly direction to a junction, at the border, with a line to be constructed by the Rhodesian Railways. The credit, bearing annual interest of 4 per cent, will be repaid in 40 semiannual installments, beginning April 1958.

The railways of Northern and Southern Rhodesia and of Mozambique jointly have planned construction of about 340 miles of new railroad to assist in the economic development of Africa and to provide increased rail capacity for mining areas of the Rhodesias. The new route will traverse a region which presents no serious construction difficulties.

Thailand. — This country's State Railways have invited bids for supply and delivery of 500 four-wheel, one-meter-gage, covered freight cars, according to Foreign Commerce Weekly. Bidding conditions, specifications and blueprints may be borrowed from the Commercial Intelligence Division, U.S. Department of Commerce, Washington 25, D.C.

EQUIPMENT AND SUPPLIES

Domestic Equipment Orders Reported in January

Orders for 732 freight-train cars and 85 diesel units for domestic use were reported by individual purchaser in *Railway Age* in January. Estimated cost of the cars is $4,505,000, and of the diesels, $12,604,000. An accompanying table lists the orders in detail.

DOMESTIC EQUIPMENT ORDERS REPORTED IN JANUARY

LOCOMOTIVES

Purchaser	No.	Type	Issue Reported	Builder
D&RGW	5	1,500-hp. Rd.-Sw.	Jan. 19	Electro-Motive
MP	38*	1,500-hp. Rd.-Sw.	Jan. 26	Electro-Motive
	7	1,600-hp. "A" Frt.	Jan. 26	American-G.E.
	11	1,600-hp. "B" Frt.	Jan. 26	American-G.E.
	1	1,600-hp. Passenger	Jan. 26	American-G.E.
	7**	1,200-hp. Switching	Jan. 26	Baldwin-Lima-Hamilton
Monongahela	12	1,200-hp. Switching	Jan. 26	Baldwin-Lima-Hamilton
WP	4	1,500-hp. Rd.-Sw.	Jan. 26	Electro-Motive

*Including five each for the Gulf Coast Lines and the International-Great Northern.
**For the Union (Memphis).

FREIGHT CARS

Burlington Refrigerator Express	100	50-ton Refrigerator	Jan. 26	Co. Shops
	30	70-ton Mech. Refrig.	Jan. 26	Co. Shops
CofG	50	70-ton Cov. Hopper	Jan. 19	Pullman-Standard
D&RGW	200	70-ton Gondola	Jan. 19	General American
GN	200	50-ton Flat	Jan. 19	Pacific Car & Fdy.
GM&O	50	70-ton Cov. Hopper	Jan. 19	Pullman-Standard
WP	102	Flat	Jan. 26	R.R. Shops

LOCOMOTIVES

RRs Installed 3,065 Power Units in 1952

Class I railroads in 1952 put 2,415 new locomotives, or 3,065 units, in service, the Association of American Railroads has announced. This was 143 locomotives, or 397 units, below the record number installed in 1951, for which year the total was 2,558 locomotives, or 3,462 units. Of the total placed in service in 1952, 171 locomotives were installed in December, compared with 192 in December 1951.

New locomotives put in service in 1952 included 2,389 diesels (3,038 units), 19 steam, one electric and six gas turbine electrics. Locomotives installed in 1951 included 2,537 diesels (3,438 units), 18 steam and three electrics.

On January 1, 1953, Class I roads had 832 new locomotives (958 units), on order. These included 788 diesels (914 units), 15 steam, 10 electric and 19 gas turbine electrics. One year earlier Class I roads had 1,739 new locomotives (2,207 units), on order, including 1,709 diesels (2,176 units), 19 steam, one electric and 10 gas turbine electrics.

PASSENGER CARS

The **Duluth, Missabe & Iron Range** has ordered one rail diesel car (RDC-3), from the Budd Company. Delivery of the car, which was listed on page 186 of the January 12 *Railway Age* (purchaser unspecified), is expected shortly.

FREIGHT CARS

The **Duluth, South Shore & Atlantic** has ordered 100 50-ton box cars from the Pullman-Standard Car Manufacturing Company for delivery next July.

The **Erie** has ordered 50 radio-equipped, bay-window cabooses from the International Railway Car & Equipment Manufacturing Co. at an estimated base cost of $485,000. Deliveries are expected to start March 1 and continue for seven months. A lot of 50 cabooses the Erie previously had ordered from its own shops has been cancelled.

The **Union Tank Car Company** has ordered 250 tank cars from its own shops for delivery later this year.

SIGNALING

The Atchison, Topeka & Santa Fe has ordered from the Union Switch & Signal Division of the Westinghouse Air Brake Company materials for an addition to existing C.T.C. between Belen, N. M., and Vaughn. Apparatus will be added at the C.T.C. machine at Clovis, N. M., and signals will be added at Belen.

The Union Pacific has ordered from the Union Switch & Signal Division of the Westinghouse Air Brake Company 38 sets of intermittent train stop equipment to be installed on locomotives already equipped with coded continuous cab signals.

SUPPLY TRADE

Edward A. Sipp has been appointed vice-president in charge of sales of the railroad supply division of **Silvercote Products, Inc.** Mr. Sipp formerly was manager of the railway division of Reynolds Metals Company.

Alexander Ross has been appointed chief engineer, and **H. R. Sennstrom** executive engineer, of the **American Locomotive Company.** Mr. Ross has been associated with the company since 1932, when he joined the engineering department of the affiliated Montreal Locomotive Works at Montreal. In 1940, at the request of the Canadian

government, he was temporarily assigned in charge of engineering of the munitions division of the Canadian National. He returned to Alco in 1941 in charge of locomotive engineering, and early in 1946 wa stransferred to Schenectady, N.Y. as assistant to director of locomotive engineering. Mr. Ross later was appointed mechanical engineer, chassis design, and in October 1952 was appointed engineer in charge of locomotive design.

Alexander Ross

Mr. Sennstrom joined Alco's engineering department in 1940, specializing in laboratory and diesel engine development work. In 1946 he was appointed superintendent of the diesel engine laboratory, and in 1949 research and testing engineer in charge of all laboratory work. Mr. Sennstrom directed pioneer work in use of the spectroscope for analyzing diesel engine lubricating oil in locomotive maintenance.

H. R. Sennstrom

The **Caterpillar Tractor Company** has rearranged its sales department at the executive level. **J. W. Mohler,** returning to Caterpillar after 10 months with the National Production Board in Washington, D.C., will resume his former position of assistant director of sales. **J. J. Valentine** and **W. S. Zeigler,** will continue as assistant directors of sales with a realinement of duties. Mr. Valentine will be in charge of the Western, Plains and Industrial sales divisions, while Mr. Zeigler will handle Central, Eastern and Governmental sales divisions.

C. W. Henricks (left), formerly sales engineer with the Union Switch & Signal Division of Westinghouse Air Brake Company, has been appointed assistant district manager, at New York. J. L. Loucks (right), has retired as sales engineer at Chicago, after 44 years of service. Mr. Henricks entered signal work in 1922 when he joined the Pennsylvania, from which road he resigned in 1945 to join Union Switch & Signal.

Thomas W. Milligan has joined the staff of the **Spring Packing Corporation** as assistant vice-president, in charge of railroad activities. In 1945, after attending Cornell University and spending four years in the Marine Corps, Mr. Mulligan started his business career with the Pyle-National Company, serving first as sales engineer at St. Paul, then as district manager at San Francisco, and later as manager, western division. In 1949 he was transferred to Chicago as manager, central division, a position from which he resigned to become vice-president of Sherman Olson, Inc., Chicago general contractors.

Thomas W. Milligan

John W. Scallan, vice-president of midwestern sales of the **Pullman-Standard Car Manufacturing Company,** has been promoted to vice-president and general manager. Mr. Scallan was graduated from Notre Dame University in 1925 with a degree in journalism, and began his business career as a reporter on the Chicago Herald & Examiner. He joined the Pullman Company in 1926, and two years later became a sales agent of the Pullman Car & Manufacturing Corp., now Pullman-Standard. In 1932 he was appointed western district sales manager, in 1942 assistant vice-president, and in 1944 vice-president, midwestern sales.

Fabian Bachrach

John W. Scallan

Robert G. Lane has been appointed general traffic manager of the **National Radiator Company.** He formerly was traffic manager of the Rockwell Manufacturing Company.

W. R. Sugg, Jr., has been appointed assistant manager, and **G. A. Moore,** manager of manufacturing, of the transportation and generator division of the **Westinghouse Electric Corporation.** Mr. Sugg formerly was

Russell E. Legrand, who has been appointed sales engineer for the railway equipment division of the Bogue Electric Manufacturing Company. His territory will cover the middle west, with headquarters in Chicago. Mr. Legrand recently resigned from the signal department of the Chicago, Milwaukee, St. Paul & Pacific.

manager of the division's heavy traction section, and Mr. Moore, superintendent of manufacturing of the division.

FINANCIAL

Chesapeake & Ohio. — *Increases New York Central Holdings.*—The C&O has acquired, directly and through a subsidiary, an additional 244,741 shares of New York Central common stock, increasing its ownership of that issue to 644,741 shares, or 10 per cent of outstanding NYC common.

Missouri Pacific. — *Mahaffie-Act Reorganization Proposed.* — Missouri Pacific security holders and creditors shortly will be asked to assent to a a plan of reorganization under terms of the Mahaffie Act. When the required number of assents have been made available, an application will be filed with the U.S. District Court of St. Louis for permission to file a Mahaffie Act reorganization plan, which would supersede the pending plan for reorganization under Section 77 of the Bankruptcy Act.

Southern.—*Stock Split Proposed.*—Directors of this road have approved a two-for-one split of the common stock, subject to approval of stockholders at the annual meeting next May. A dividend of $1.25 a share on the common stock (reported elsewhere in these columns), was declared payable March 14 to stockholders of record February 13. If the proposed stock split is approved, the new shares would be placed on a $2.50 annual basis, equal to $5 a year on the present stock.

Spokane International. — *Stock Split.*—This road has applied to the I.C.C. for authority to split its stock six-for-one, and thereby place the shares in a "popular price range." The road would issue 142,320 shares of new no-par stock to present stockholders. There are 28,464 shares now outstanding. The road told the I.C.C. that it had 243 stockholders on January 8 of this year, when its stock was selling for around $80 per share. It added that it would like to have wider public ownership.

New Securities

Application has been filed with the I.C.C. by:

INTERNATIONAL-GREAT NORTHERN.—To assume liability for $3,000,000 of series EE equipment trust certificates, to finance in part 500 box cars and five diesel-electric locomotives costing an estimated $3,804,013:

	Description and Builder	Estimated Unit Cost
500	all-steel box cars (Missouri-Pacific Car Shops, DeSoto, Mo.)	$ 5,981
3	1,500-hp. road-switchers (Electro-Motive Division, General Motors Corporation)	155,398
2	1,500-hp. road-switchers (Electro-Motive)	167,158

The certificates, dated February 20, would mature in 15 annual installments beginning February 20, 1954. First five such installments would be $300,000 each, and the remaining 10 would be $150,000 each. The certificates would be sold by competitive bidding, with the interest rate to be set by such bids.

TENNESSEE CENTRAL.—To increase, from $980,000 to $1,030,000, the amount of equipment trust certificates to be issued pursuant to authorization granted by the commission October 17, 1952 (*Railway Age*, November 10, 1952, page 72). The certificates, bearing interest at 4 per cent, are being sold to the Reconstruction Finance Corporation at par, and proceeds are being used to finance acquisition of 200 hopper cars. Price increases under escalator clauses will raise the unit cost of the cars from $4,900 to $5,100, and thus require issuance of the additional $50,000 in certificates, the TC advised the commission.

Division 4 of the I.C.C. has **authorized:**

DELAWARE, LACKAWANNA & WESTERN.—To assume liability for $6,480,000 of series L equipment trust certificates, to finance in part 700 freight cars and 20 diesel locomotives costing an estimated $8,130,700 (*Railway Age*, January 5, page 53). Division 4 approved sale of the certificates for 99.7603 with a 3⅛ per cent interest rate—the bid of Salomon Bros. & Hutzler and three associates—which will make the average anual cost of the proceeds to the road approximately 3.19 per cent. The certificates, dated January 15, will mature in 15 annual installments of $432,000 each, beginning January 15, 1954. They were reoffered to the public at prices yielding from 2.35 to 3.15 per cent, according to maturity.

NEW YORK, NEW HAVEN & HARTFORD.—To issue and sell $14,000,000 of Harlem River Division first mortgage bonds, Series A. Proceeds will be used to retire Harlem River-Port Chester first mortgage, 4 per cent gold bonds which will mature January 1, 1954 (*Railway Age*, December 22, 1952, page 54). Division 4's report approved sale of the new bonds at 97.548 with a 4¼ per cent interest rate—the bid of W. E. Hutton & Co. and Kidder, Peabody & Co., and 16 associates—which will make the average annual cost of the proceeds to the road approximately 4.44 per cent. The new bonds will be dated January 1, 1953, and the maturity date will be January 1, 1973. The indenture will have sinking-fund provisions; and the bonds will also be redeemable (at premiums higher than the sinking-fund bases) at the option of the NH on interest dates beginning with January 1, 1954. The bonds were reoffered to the public at 98.673.

Dividends Declared

ATLANTA & CHARLOTTE AIR LINE.—$4.50, semianual, payable March 2 to holders of record February 20.

ERIE.—preferred, $1.25, quarterly, payable March 2, June 1, September 1 and December 1 to holders of record February 11, May 13, August 13, and November 13.

ILLINOIS CENTRAL.—6% non-cumulative preferred, $3, semiannual, payable March 2 and September 1 to holders of record February 4 and August 5.

LOUISVILLE, HENDERSON & ST. LOUIS.—5% preferred, $2.50, semiannual, payable February 15 to holders of record January 31.

NEW YORK, CHICAGO & ST. LOUIS.—common, 50¢, quarterly; 6% preferred A, $1.50, quarterly, both payable April 1 to holders of record February 27.

PEORIA & BUREAU VALLEY.—$2.12½, payable February 10 to holders of record January 26.

SOUTHERN.—common, $1.25, increased payable March 14 to holders of record February 13.

Security Price Averages

	Jan. 27	Prev. Week	Last Year
Average price of 20 representative railway stocks	69.60	68.85	57.76
Average price of 20 representative railway bonds	94.99	95.14	91.65

RAILWAY OFFICERS

EXECUTIVE

Ira Davis, general manager of the TERMINAL RAILROAD ASSOCIATION OF ST. LOUIS at St. Louis, has been appointed vice-president and general manager, with jurisdiction over the operating, engineering and maintenance, and mechanical departments.

OPERATING

R. N. Begien, Jr., superintendent freight transportation of the CHESAPEAKE & OHIO, has been appointed assistant general manager of the Chesapeake district, with headquarters as before at Richmond, Va., succeeding **M. I. Dunn,** promoted. **C. V. Cowan,** assistant superintendent of the Richmond division, has been appointed assistant superintendent freight trans-

R. N. Begien, Jr.

portation, with headquarters as before at Richmond, succeeding **E. L. Morrison, Jr.,** who has been promoted to superintendent freight transportation at Richmond, replacing Mr. Begien. **R. V. Wade** has been appointed trainmaster of the Peninsula subdivision, including jurisdiction over Main Street station, at Richmond, succeeding **C. H. Manning,** who succeeds Mr.

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CONTROLLED
POWER
for
CAR LIGHTING
and
CABOOSE RADIO
FOR CHARGING
12 - 32 - 64 or 110 VOLT
Radio, Car Lighting Batteries
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WITH
RECTIFIED
HIGH FREQUENCY AC
★ For new installations and replacements. The output of the Bogue high frequency alternator is rectified by a Belcon "balanced-wattage" Selenium Rectifier and regulated by a Bogue Magnetic Amplifier. No commutators—No reverse current relays.
BOGUE RAILWAY PRODUCTS:
- Alternator-Rectifier Car Lighting battery charging systems
- DC Car Lighting generators
- Internal Combustion Engine driven Car Lighting Generators
- Custom designed Control Panels
- Magnetic Amplifier Voltage and Speed Regulators
- Selenium Rectifiers
- Electronic Communication Systems
- Rotary Converters
BOGUE RAILWAY
EQUIPMENT DIVISION
Bogue Electric Manufacturing Co.
PATERSON 3, NEW JERSEY
BOGUE
PRECISION
POWER

Cowan as assistant superintendent of the Richmond division.

Mr. Begien was born at Washington, D.C., on May 10, 1903, and attended Princeton University. He entered the service of the C&O as a rodman in 1924 and subsequently served as assistant engineer, assistant trainmaster, special engineer, trainmaster, assistant superintendent, superintendent terminals and division superintendent. Mr. Begien was appointed assistant general superintendent of the Western General division at Huntington, W.Va., in August 1949, and became superintendent freight transportation at Richmond in February 1952.

Mr. Morrison, who is 38, joined the C&O in 1945 as a transportation assistant. He was supervisor terminals at Huntington prior to his appointment as assistant superintendent freight transportation at Richmond in 1947.

TRAFFIC

Thomas L. Norton, assistant general traffic manager of the CHICAGO & NORTH WESTERN, has been appointed general traffic manager. Mr. Norton has been associated with the North Western since 1921. For a number of years he was, successively, general clerk, cashier, and agent at Maywood, Ill. In 1928 he was promoted to city

Thomas L. Norton

agent at Cleveland. During 1937 he was transferred to New York, where he served successively as city agent, general perishable agent, and general agent, freight department, followed, in 1943, by his promotion to general eastern freight agent. Two years later he was appointed assistant traffic manager, and, in 1947, traffic manager in charge of sales. In 1951 Mr. Norton assumed the position of assistant general traffic manager.

As reported in *Railway Age* December 8, 1952, page 90, **William F. Coyne** has been appointed passenger traffic manager of the SOUTHERN PACIFIC at New York, succeeding **J. H. Desherow,** retired. Mr. Coyne joined the SP in 1927 as a correspondent in the New York general passenger office. He was named assistant general agent at New York in 1942, general agent at Chicago in 1944, and assistant to passenger traffic manager in 1946.

William F. Coyne

Mr. Desherow began his railroad career as a traveling freight and passenger agent at Detroit in 1911 and served as general agent for the SP at

J. H. Desherow

Minneapolis and Chicago before his promotion to passenger traffic manager at New York in 1944.

SPECIAL

F. J. Householder, Jr., has been appointed chief of personnel services of the CHESAPEAKE & OHIO at Cleveland.

The ATCHISON, TOPEKA & SANTA FE has transferred publication of its monthly 12-state crop report from Oklahoma City, Okla., to Amarillo, Tex. **C. W. Lane,** special representative, who has written the report for a number of years, has been assigned to general public relations work, while **R. I. Cross,** agricultural agent at Amarillo, has assumed publication of the report.

A. L. Sparks, architect of the MISSOURI-KANSAS-TEXAS, has retired after 33 years of service.

Current Publications

BOOKS

The Electric Railways of Ohio. Bulletin 96 ("Trolley Sparks") of the Central Electric Railfans Association. 216 pages, with more than 1,000 photographs, maps, charts, employee and public timetable pages, etc. Plastic-faced covers and plastic ring-type binder. A limited quantity available to non-members through the association, Box 503, Chicago 90. $7.50

A pictorial record of 65 years of electric rail transportation in Ohio. Maps on the inside front and back covers, reproduced from the Central Electric Traffic Association's map of 1912, show the maze of interurban trackage that grew so fast after the turn of the century that railway men themselves were hard-pressed to know where all the lines ran.

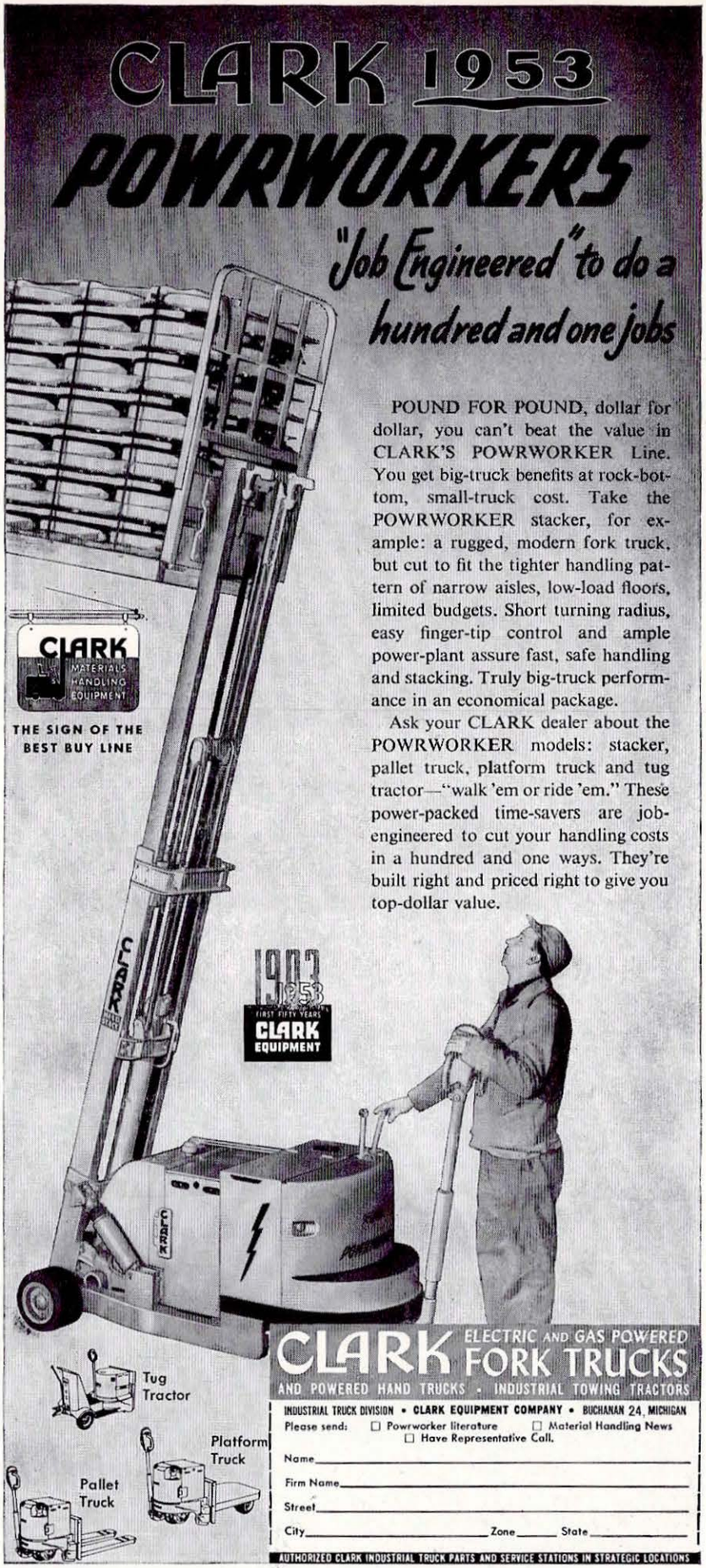
Today only a few tiny segments of this empire remain—almost all of them local switching roads. This carefully compiled work represents countless hours of research through dusty photo files of Ohio newspapers, commercial photographers and albums of former electric railway employees. It covers virtually every company that operated within the state and is probably the most complete treatise every published on this short-lived form of railroad transport.

Cyclopedia of Commercial Products. 490 pages, illustrations. Edward Don & Co., 2201 S. LaSalle st., Chicago 16. Distributed by lease subscription, two years, $25.

A compilation of items of equipment, furnishings and supplies used by establishments where the public eats, sleeps, drinks, works or seeks recreation, entertainment, health, recovery or relaxation. Products of over 2,500 mills and factories are illustrated and described. The book will be distributed to hotels, clubs, restaurants, schools, railways, air lines, steamship lines, and others concerned with the necessity for making intelligent, time saving and correctly engineered plans for food service installations and their economical operation and maintenance.

Hear the Train Blow; A Pictorial Epic of America in the Railroad Age, by Lucius Beebe and Charles Clegg. 415 pages, illustrations, drawings. E. P. Dutton & Co., 300 Fourth ave., New York 10. $12.75.

This beautifully produced book is a picture story, amplified with text, of the railroads as they have played their part in the history, economy, geography, legend, folklore and consciousness of America. It explores the background against which the railroads flourished in the age of steam and the impact they have had upon the lives of four generations. The authors have attempted, in their selection of pictures and narration of story, to show what railroads have meant and how they came to make America the most mobile, within its continental limits, of the civilizations of history. It is a study of many aspects of the national record and way of life which make it an item of authentic Americana.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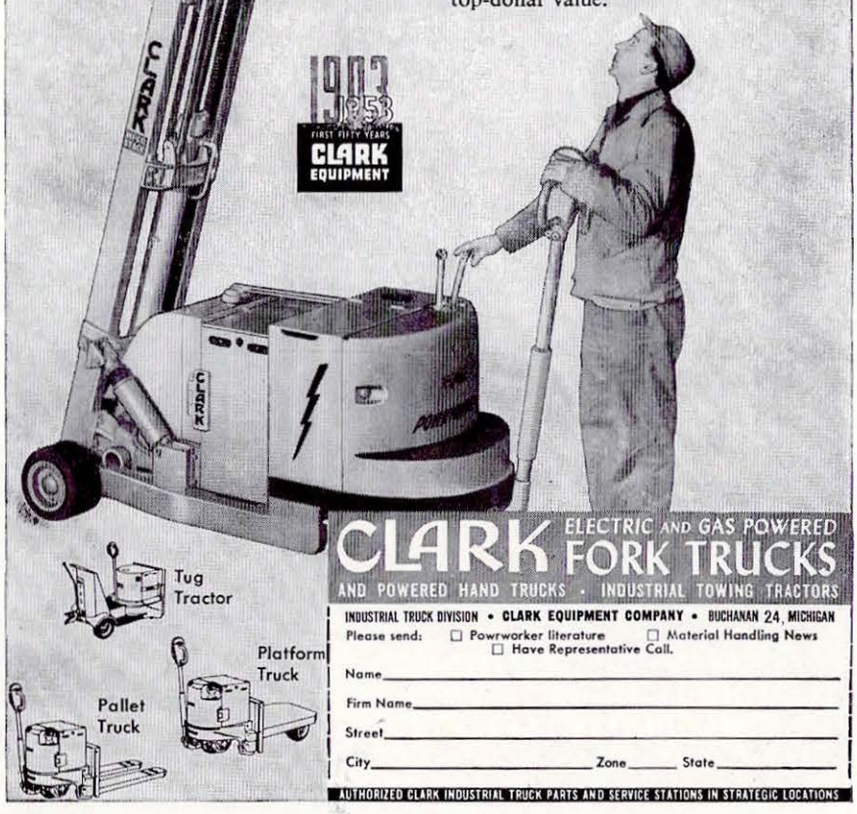

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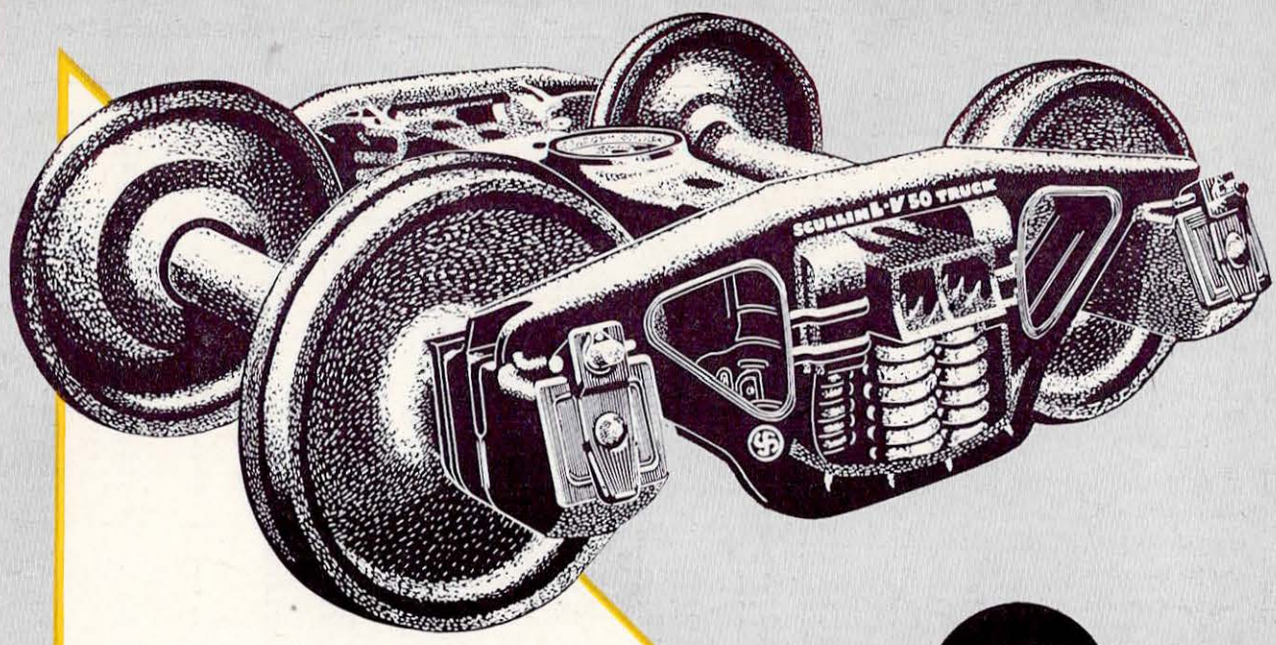

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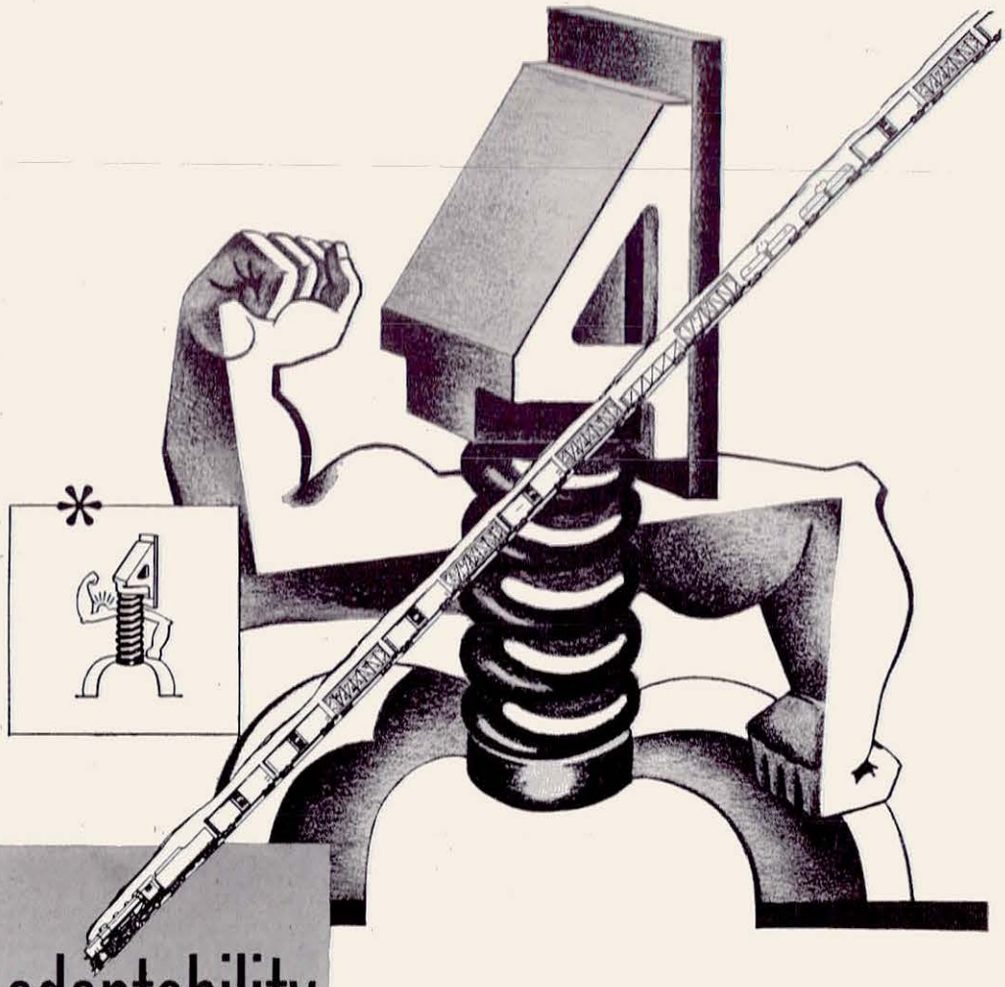
Freight Operating Statistics of Large Railways — Selected Items

Region	Road and Year	Miles of road operated	Train-miles	Locomotive Miles: Principal and helper	Locomotive Miles: Light	Car Miles: Loaded (thousands)	Car Miles: Per cent loaded	Ton-miles (thousands): Gross excl. locos. & tenders	Ton-miles (thousands): Net rev. and non-rev.	Road-locos. on line: Serviceable: Unstored	Road-locos. on line: Serviceable: Stored	Road-locos. on line: B.O.	Road-locos. on line: Per cent B.O.
New Eng. Region	Boston & Maine 1952	1,689	261,935	270,087	13,487	10,508	69.8	654,393	274,053	79	11	10	10.0
	1951	1,690	268,491	278,023	14,982	10,414	72.1	647,644	284,992	83	4	18	17.1
	N. Y., N. H. & Htfd 1952	1,765	312,635	312,973	17,512	12,608	71.1	767,223	335,558	100	..	4	3.8
	1951	1,765	313,680	313,803	20,540	11,871	70.7	738,879	330,955	102	..	8	7.3
Great Lakes Region	Delaware & Hudson 1952	793	221,141	229,367	11,974	10,886	74.1	743,034	403,367	38	55	19	17.0
	1951	793	250,619	291,575	22,707	11,332	74.2	784,741	436,438	103	20	30	19.6
	Del., Lack. & Western 1952	962	283,932	303,622	25,931	13,587	71.9	873,932	404,591	72	4	2	2.6
	1951	964	294,557	315,182	30,308	13,153	70.4	873,371	411,279	79	10	14	13.6
	Erie 1952	2,242	668,017	675,360	36,091	39,124	69.5	2,424,439	996,020	176	..	1	.6
	1951	2,243	669,960	684,069	37,540	37,549	67.6	2,396,283	987,718	170	19	19	9.1
	Grand Trunk Western 1952	952	264,011	270,656	2,274	9,190	63.1	624,424	259,349	66	..	8	10.8
	1951	952	268,601	274,379	2,345	9,319	65.2	627,793	273,746	54	2	11	16.4
	Lehigh Valley 1952	1,206	246,596	251,812	11,422	12,394	70.4	832,742	403,224	35	..	..	..
	1951	1,210	254,706	263,893	15,010	12,988	70.7	869,698	426,522	41	5	6	11.5
	New York Central 1952	10,668	2,804,559	2,890,490	121,754	110,844	62.2	7,860,217	3,507,655	798	84	203	18.7
	1951	10,675	3,051,800	3,231,171	170,024	114,571	63.3	8,258,716	3,849,690	960	109	332	23.7
	New York, Chic. & St. L. 1952	2,160	796,557	820,018	8,178	32,404	68.1	2,215,535	1,002,245	198	1	49	19.8
	1951	2,161	830,106	851,100	11,624	32,880	68.0	2,341,871	1,110,907	202	14	38	15.0
	Pitts. & Lake Erie 1952	221	75,500	78,414	17	3,602	70.5	299,462	187,658	38	5	9	17.3
	1951	221	90,495	90,879	222	3,807	71.3	315,357	197,489	35	3	14	26.9
	Wabash 1952	2,381	600,398	605,550	9,049	26,828	70.1	1,705,446	718,618	115	23	40	22.5
	1951	2,381	565,435	571,949	8,115	24,656	71.1	1,569,870	692,450	122	21	37	20.6
Central Eastern Region	Baltimore & Ohio 1952	6,082	1,642,999	1,841,572	170,135	67,850	64.1	4,994,573	2,428,501	543	40	151	20.6
	1951	6,083	1,798,435	2,090,100	238,672	71,116	64.9	5,466,243	2,768,255	636	59	177	20.3
	Central of New Jersey 1952	411	74,318	74,858	4,092	2,847	65.7	209,086	107,316	37	1	..	..
	1951	412	77,178	77,382	3,509	3,100	67.2	234,841	126,044	40	..	6	13.0
	Central of Pennsylvania 1952	207	61,645	66,734	9,284	2,640	70.1	191,933	103,558	35	1	7	16.3
	1951	208	76,590	86,886	16,578	2,905	69.4	217,522	119,476	36	..	5	12.2
	Chicago & Eastern Ill. 1952	868	134,025	134,025	3,503	5,641	67.2	388,167	191,918	29	..	2	6.5
	1951	886	134,809	134,809	3,507	5,258	71.2	345,833	173,718	28	..	2	6.7
	Elgin, Joliet & Eastern 1952	236	98,954	99,913	224	3,614	64.9	288,139	156,745	42	..	..	..
	1951	238	105,789	107,703	770	4,063	65.5	328,577	183,206	42	..	1	2.3
	Pennsylvania System 1952	9,961	3,229,500	3,464,345	326,919	141,692	67.7	9,786,759	4,793,254	1,019	61	361	25.1
	1951	10,045	3,310,182	3,593,482	383,505	144,654	68.2	10,300,034	5,217,673	1,155	92	357	22.3
	Reading 1952	1,318	359,148	367,583	22,750	14,194	65.1	1,117,983	593,182	165	16	20	10.0
	1951	1,311	401,887	413,445	31,368	14,991	66.6	1,167,447	647,626	172	32	31	13.2
	Western Maryland 1952	836	175,941	204,548	24,150	6,000	63.5	487,749	269,990	122	9	10	7.1
	1951	837	200,415	237,383	27,056	6,904	62.8	575,206	322,166	121	7	22	14.7
Pocahontas Region	Chesapeake & Ohio 1952	5,037	1,170,079	1,200,977	36,600	51,120	57.3	4,270,227	2,293,422	442	67	186	26.8
	1951	5,043	1,588,349	1,669,926	74,288	73,777	56.7	6,534,361	3,673,852	504	3	218	30.1
	Norfolk & Western 1952	2,113	636,423	671,775	44,792	28,977	58.9	2,467,695	1,287,885	221	38	14	5.1
	1951	2,113	840,936	898,864	73,912	39,663	58.6	3,580,792	1,969,557	244	7	25	9.1
Southern Region	Atlantic Coast Line 1952	5,460	787,952	787,985	8,548	24,553	61.7	1,763,256	827,573	279	16	27	8.4
	1951	5,434	765,559	765,763	10,723	24,859	63.1	1,766,561	839,503	375	29	124	23.5
	Central of Georgia 1952	1,754	206,604	212,752	2,999	7,881	69.4	521,642	245,631	85	22	..	..
	1951	1,765	244,202	246,086	4,128	7,866	68.8	530,013	250,533	86	10	8	7.7
	Gulf, Mobile & Ohio 1952	2,718	337,161	337,161	425	18,484	71.7	1,232,834	605,567	86	..	3	3.4
	1951	2,851	336,807	336,807	214	17,324	72.5	1,128,126	542,022	80	..	3	3.6
	Illinois Central 1952	6,539	1,649,765	1,655,073	56,401	58,046	63.6	4,192,618	1,951,289	554	11	79	12.3
	1951	6,539	1,626,125	1,632,513	57,844	57,949	63.2	4,206,109	1,960,316	578	17	65	9.8
	Louisville & Nashville 1952	4,729	968,988	1,017,838	23,224	34,385	63.1	2,490,915	1,232,014	250	67	48	13.2
	1951	4,756	1,077,547	1,139,448	28,862	38,028	63.6	2,816,682	1,443,211	292	36	70	17.6
	Nash., Chatt. & St. Louis 1952	1,032	206,488	209,560	3,077	6,747	73.4	432,101	207,095	53	..	..	..
	1951	1,032	210,109	213,308	3,076	7,034	75.4	440,840	213,498	53	..	7	11.7
	Seaboard Air Line 1952	4,135	606,850	606,850	1,318	23,543	64.4	1,658,042	764,442	150	72	5	2.2
	1951	4,136	642,510	644,110	1,905	23,489	66.1	1,648,657	778,447	184	81	40	13.1
	Southern 1952	6,264	1,079,594	1,079,636	12,781	42,397	71.5	2,649,321	1,217,378	274	46	25	7.2
	1951	6,263	1,195,635	1,196,704	13,473	43,761	71.7	2,786,448	1,313,905	348	59	114	21.9
Northwestern Region	Chicago & North Western 1952	7,872	982,723	992,021	20,167	39,953	67.0	2,676,084	1,238,543	322	6	75	18.6
	1951	7,889	999,769	1,016,372	23,213	37,553	64.4	2,664,243	1,220,472	323	4	152	31.7
	Chicago Great Western 1952	1,441	154,379	154,851	2,165	9,690	72.7	639,801	306,321	33	..	2	5.7
	1951	1,441	160,990	161,462	5,769	9,359	70.3	613,442	278,576	32	..	2	5.9
	Chic., Milw., St. P. & Pac. 1952	10,660	1,266,374	1,302,248	54,105	53,711	67.4	3,521,232	1,588,541	407	46	71	13.5
	1951	10,663	1,359,185	1,408,956	57,491	53,752	64.9	3,692,845	1,692,020	421	29	69	13.3
	Chic., St. P., Minn. & Omaha 1952	1,606	202,064	207,394	9,885	6,397	72.3	425,336	200,845	70	..	23	24.7
	1951	1,606	210,375	217,508	10,790	6,122	68.6	426,299	198,253	69	..	34	33.0
	Duluth, Missabe & Iron Range 1952	569	201,281	202,753	2,109	8,903	49.9	905,993	527,938	81	..	1	1.2
	1951	567	190,520	191,284	1,145	8,690	51.2	886,036	532,111	68	..	5	6.8
	Great Northern 1952	8,301	1,392,997	1,397,432	51,360	57,077	65.2	4,175,849	2,037,135	362	83	64	12.6
	1951	8,309	1,311,434	1,313,913	49,201	52,551	63.9	3,941,296	1,922,616	387	91	58	10.8
	Minneap., St. P. & S. St. M. 1952	4,172	449,032	455,240	4,987	15,765	69.1	1,048,436	514,182	115	..	10	8.0
	1951	4,173	481,428	491,973	5,788	16,771	66.0	1,181,306	586,546	116	..	11	8.7
	Northern Pacific 1952	6,586	912,836	942,292	42,760	38,403	72.1	2,551,018	1,205,117	326	12	66	16.3
	1951	6,591	910,501	943,077	42,727	37,982	70.6	2,596,894	1,255,704	340	8	64	15.5
Southwestern Region	Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.) 1952	13,072	2,790,823	2,921,960	115,655	122,666	66.8	8,036,839	3,109,519	630	48	106	13.5
	1951	13,096	2,899,239	3,003,042	101,163	124,042	66.9	8,128,114	3,165,225	628	61	143	17.2
	Chic., Burl. & Quincy 1952	8,832	1,390,322	1,414,036	53,543	59,863	68.2	3,916,326	1,764,321	353	3	125	26.0
	1951	8,791	1,346,819	1,374,966	53,404	57,827	68.5	3,823,581	1,755,341	372	23	133	25.2
	Chic., Rock I. & Pac. 1952	7,902	1,004,573	1,002,392	7,472	40,611	65.8	2,826,531	1,227,157	185	27	29	12.0
	1951	7,902	1,044,689	1,048,687	18,889	38,048	65.7	2,584,294	1,186,787	215	36	53	17.4
	Denver & R. G. Wn. 1952	2,333	429,548	469,268	53,548	19,344	73.6	1,276,274	596,288	117	13	29	18.2
	1951	2,334	427,842	475,495	63,615	19,038	71.9	1,248,934	581,649	131	9	29	17.2
	Southern Pacific 1952	8,058	2,523,148	2,665,188	305,204	112,246	64.5	7,678,596	3,119,781	721	3	155	17.6
	1951	8,083	2,362,751	2,482,245	270,025	107,086	67.3	7,127,706	2,970,413	685	6	161	18.9
	Union Pacific 1952	9,834	3,251,194	3,376,358	224,385	131,459	66.9	8,673,713	3,589,375	707	7	102	12.5
	1951	9,756	2,930,053	3,051,050	218,187	122,771	66.8	8,192,678	3,465,574	651	7	131	16.6
	Western Pacific 1952	1,190	294,201	299,435	17,532	14,054	73.1	892,064	412,214	46	..	8	14.8
	1951	1,190	281,694	287,205	18,098	13,996	72.1	875,291	395,111	45	10	13	19.1
Central Western Region	International-Gt. Northern* 1952	1,104	179,684	179,684	.....	6,880	68.6	493,186	228,027	49	9	4	6.5
	1951	1,104	196,959	196,959	188	6,906	66.3	479,562	225,321	46	1	11	19.0
	Kansas City Southern 1952	886	191,594	191,594	188	10,265	69.2	708,659	337,682	26	2	5	15.2
	1951	886	170,456	170,474	268	9,214	68.9	619,196	289,140	29	4	17	34.0
	Mo.-Kans.-Texas Lines 1952	3,230	419,440	419,493	4,592	16,492	64.4	1,075,088	458,548	88	8	8	7.7
	1951	3,230	429,084	431,225	7,022	15,798	65.7	1,031,959	441,654	83	7	23	20.4
	Missouri Pacific* 1952	6,932	1,344,334	1,350,710	19,089	54,409	69.5	3,593,045	1,640,675	313	15	59	15.2
	1951	6,932	1,359,193	1,386,164	19,082	52,149	68.4	3,555,373	1,607,503	343	7	61	14.8
	Texas & Pacific 1952	1,832	361,489	361,489	3,354	15,199	64.7	1,051,146	418,563	63	7	6	7.9
	1951	1,844	362,288	362,288	9,526	15,024	67.4	1,003,572	404,460	68	13	45	35.7
	St. Louis-San Francisco 1952	4,567	684,936	685,029	6,577	26,442	63.3	1,818,670	794,177	187	15	22	9.8
	1951	4,570	698,446	700,821	7,793	25,487	65.8	1,720,075	773,767	183	68	95	27.5
	St. Louis Southw. Lines 1952	1,562	355,239	355,303	4,873	15,665	72.7	948,520	424,002	57	14	12	14.5
	1951	1,562	351,001	352,965	4,781	15,127	74.8	917,776	410,259	78	14	20	17.9
	Texas & New Orleans 1952	4,280	826,240	829,000	24,287	29,828	65.7	2,038,046	908,446	213	..	25	10.5
	1951	4,291	838,645	838,645	19,665	30,905	68.6	2,024,668	892,232	227	..	43	15.9

For the Month of October 1952 Compared with October 1951

	Region, Road and Year	Freight cars on line: Home	Foreign	Total	Per Cent B.O.	G.t.m.per train-hr. excl.locos. and tenders	G.t.m. per train-mi. excl.locos. and tenders	Net ton-mi. per train-mile	Net ton-mi. per l'd car-mile	Net ton-mi. per car-day	Car miles per car-day	Net daily ton-mi. per road-mi.	Train-miles per train-hour	Miles per loco. per day
New Eng. Region	Boston & Maine 1952	1,207	8,640	9,847	2.9	40,542	2,502	1,048	26.1	908	49.9	5,234	16.2	100.1
	1951	1,182	9,193	10,375	2.7	38,070	2,416	1,063	27.4	933	47.3	5,440	15.8	99 2
	N. Y., N. H. & Htfd 1952	929	15,343	16,272	2.0	36,442	2,454	1,073	26.6	654	34.6	6,133	14.8	118.4
	1951	1,385	14,545	15,930	3.5	34,538	2,359	1,056	27.9	690	35.0	6,049	14.7	117.3
Great Lakes Region	Delaware & Hudson 1952	3,540	5,576	9,116	3.4	65,907	3,377	1,833	37.1	1,352	49.3	16,408	19.6	67.3
	1951	3,159	6,523	9,682	4.9	58,497	3,154	1,754	38.5	1,514	53.0	17,754	18.7	71.3
	Del., Lack. & Western 1952	3,404	10,461	13,865	5.0	50,085	3,115	1,442	29.8	906	42.3	13,567	16.3	147.3
	1951	4,258	10,867	15,125	5.6	45,822	3,021	1,423	31.3	867	39.4	13,763	15.5	124.3
	Erie 1952	7,362	22,231	29,593	3.1	66,725	3,668	1,507	25.5	1,089	61.5	14,331	18.4	137.5
	1951	5,365	23,846	29,211	3.2	62,710	3,610	1,488	26.3	1,084	61.0	14,205	17.5	122.8
	Grand Trunk Western 1952	3,238	9,235	12,473	4.6	46,495	2,385	991	28.2	649	36.4	8,788	19.7	131.7
	1951	3,378	9,739	13,117	3.9	46,861	2,352	1,026	29.4	662	34.6	9,276	20.0	140.8
	Lehigh Valley 1952	2,767	10,850	13,617	4.3	66,064	3,438	1,665	32.5	993	43.4	10,785	19.6	258.3
	1951	1,906	13,632	15,538	7.0	65,229	3,458	1,696	32.8	882	38.0	11,371	19.1	179.6
	New York Central 1952	57,543	105,449	162,992	8.3	46,295	2,839	1,267	31.6	696	35.4	10,607	16.5	100.2
	1951	52,142	106,454	158,596	6.4	44,687	2,752	1,283	33.6	782	36.8	11,633	16.5	86.5
	New York, Chic. & St. L. 1952	5,501	20,499	26,000	5.3	48,965	2,827	1,279	30.9	1,252	59.4	14,968	17.6	119.0
	1951	5,022	23,078	28,100	3.5	48,651	2,871	1,362	33.8	1,320	57.5	16,583	17.2	118.4
	Pitts. & Lake Erie 1952	2,339	11,486	13,825	3.6	57,957	3,976	2,491	52.1	440	12.0	27,391	14.6	53.0
	1951	3,156	9,387	12,543	8.8	52,691	3,509	2,197	51.9	517	14.0	28,826	15.1	64.3
	Wabash 1952	6,720	13,779	20,499	6.9	59,581	2,865	1,207	26.8	1,141	60.7	9,736	21.0	118.8
	1951	6,651	16,746	23,397	5.3	55,665	2,805	1,237	28.1	990	49.6	9,381	20.0	111.7
Central Eastern Region	Baltimore & Ohio 1952	52,680	42,736	95,416	7.5	44,071	3,076	1,495	35.8	829	36.1	12,880	14.5	91.2
	1951	40,067	54,356	94,423	5.3	41,608	3,079	1,559	38.9	938	37.1	14,680	13.7	88.0
	Central of New Jersey 1952	365	8,233	8,598	4.1	34,993	2,947	1,512	37.7	366	14.8	8,423	12.4	131.7
	1951	313	9,154	9,467	3.1	38,012	3,177	1,705	40.7	448	16.4	9,869	12.5	91.8
	Central of Pennsylvania 1952	1,241	3,401	4,642	15.9	43,880	3,281	1,770	39.2	693	25.2	16,138	14.1	75.7
	1951	1,256	3,380	4,636	20.2	41,425	3,093	1,699	41.1	813	28.5	18,529	14.6	104.2
	Chicago & Eastern Ill. 1952	2,349	4,034	6,383	4.7	42,920	2,929	1,448	34.0	982	42.9	7,132	14.8	158.9
	1951	1,463	3,538	5,001	5.6	39,948	2,576	1,294	33.0	1,164	49.5	6,325	15.6	163.9
	Elgin, Joliet & Eastern 1952	6,528	13,749	20,277	4.8	20,193	3,033	1,650	43.4	246	8.7	21,425	6.9	108.1
	1951	5,665	15,167	20,832	3.0	20,948	3,241	1,807	45.1	277	9.4	24,831	6.7	115.9
	Pennsylvania System 1952	101,114	101,779	202,893	9.7	49,088	3,125	1,531	33.8	757	33.0	15,523	16.2	92.2
	1951	95,160	123,612	218,772	8.0	48,518	3,211	1,626	36.1	778	31.6	16,756	15.6	88.2
	Reading 1952	12,499	18,540	31,039	6.5	38,992	3,115	1,653	41.8	612	22.5	14,518	12.5	77.6
	1951	10,607	23,344	33,951	3.9	37,017	2,907	1,613	43.2	639	22.2	15,935	12.7	73.2
	Western Maryland 1952	4,928	3,270	8,198	2.7	39,001	2,812	1,556	45.0	1,133	39.7	10,418	14.1	56.9
	1951	3,725	3,747	7,472	2.4	42,535	2,923	1,637	46.7	1,452	49.5	12,416	14.8	60.7
Pocahontas Region	Chesapeake & Ohio 1952	53,457	22,653	76,110	2.9	62,624	3,677	1,975	44.9	1,022	39.7	14,688	17.2	63.8
	1951	48,963	27,230	76,193	5.7	68,151	4,161	2,339	49.8	1,551	54.9	23,500	16.6	82.6
	Norfolk & Western 1952	35,960	7,955	43,915	2.3	65,042	3,951	2,062	44.4	1,085	41.4	19,661	16.8	91.5
	1951	30,894	9,051	39,945	1.9	68,729	4,349	2,392	49.7	1,645	56.5	30,068	16.1	123.2
Southern Region	Atlantic Coast Line 1952	14,933	17,859	32,792	2.4	36,943	2,245	1,054	33.7	815	39.2	4,889	16.5	90.0
	1951	12,308	20,547	32,855	2.7	36,360	2,327	1,106	33.8	853	40.0	4,984	15.8	53.0
	Central of Georgia 1952	2,606	6,132	8,738	3.6	42,859	2,539	1,196	31.2	927	42.9	4,517	17.0	69.6
	1951	2,149	6,603	8,752	6.2	37,160	2,182	1,031	31.9	942	43.0	4,579	17.1	81.8
	Gulf, Mobile & Ohio 1952	3,722	13,188	16,910	2.1	67,228	3,667	1,801	32.8	1,212	51.6	7,187	18.4	132.5
	1951	3,020	12,627	15,647	3.0	61,468	3,356	1,612	31.3	1,142	50.3	6,133	18.4	141.8
	Illinois Central 1952	23,985	29,209	53,194	1.8	40,387	2,580	1,201	33.6	1,128	52.8	9,626	15.9	92.7
	1951	21,524	35,169	56,693	1.8	41,482	2,614	1,218	33.8	1,127	52.7	9,671	16.0	89.8
	Louisville & Nashville 1952	36,727	16,973	53,700	3.5	41,246	2,575	1,273	35.8	843	37.3	8,404	16.0	99.5
	1951	25,919	16,473	42,392	8.4	39,529	2,618	1,341	38.0	1,113	46.2	9,789	15.1	97.1
	Nash., Chatt. & St. Louis 1952	1,304	5,442	6,746	2.8	39,432	2,093	1,003	30.7	964	42.8	6,473	18.8	142.2
	1951	938	5,645	6,583	2.9	39,787	2,101	1,017	30.4	1,074	46.9	6,673	19.0	128.5
	Seaboard Air Line 1952	9,718	14,736	24,454	2.3	49,787	2,761	1,273	32.5	996	47.6	5,964	18.2	101.7
	1951	9,232	15,513	24,745	1.8	45,731	2,599	1,227	33.1	1,029	46.9	6,071	17.8	77.1
	Southern 1952	13,550	29,402	42,952	3.8	40,992	2,473	1,136	28.7	987	48.0	6,269	16 7	101.5
	1951	11,925	31,319	43,244	4.1	38,797	2,349	1,108	30.0	989	45.9	6,767	16.6	80.7
Northwestern Region	Chicago & North Western 1952	17,625	36,178	53,803	3.8	44,888	2,963	1,326	31.0	718	34.6	5,075	15.9	88.4
	1951	18,234	34,835	53,069	4.1	41,198	2,808	1,286	32.5	742	35.5	4,991	15.5	76.9
	Chicago Great Western 1952	1,278	6,167	7,445	2.5	71,534	4,156	1,990	31.6	1,363	59.3	6,857	17.3	151.9
	1951	1,547	6,225	7,772	2.6	66,068	3,834	1,740	29.8	1,184	56.6	6,236	17.3	166.2
	Chic., Milw., St. P. & Pac. 1952	28,132	33,124	61,256	4.6	47,342	2,801	1,264	29.6	805	40.4	4,807	17.0	91.0
	1951	27,916	38,759	66,675	2.7	44,645	2,736	1,253	31.5	800	39.1	5,119	16.4	97.5
	Chic., St. P., Minn. & Omaha 1952	1,124	8,113	9,237	2.8	32,298	2,188	1,033	31.4	685	30.1	4,034	15.3	84.0
	1951	1,127	8,589	9,716	3.2	28,536	2,113	983	32.4	642	28.9	3,982	14.1	75.7
	Duluth, Missabe & Iron Range 1952	14,745	2,233	16,978	2.8	76,445	4,691	2,734	59.3	1,011	34.1	29,930	17.0	90.6
	1951	13,482	1,851	15,333	3.0	82,730	4,836	2,904	61.2	1,116	35.6	30,273	17.8	101.9
	Great Northern 1952	20,817	23,173	43,990	3.3	48,252	3,036	1,481	35.7	1,438	61.8	7,916	16.1	99.6
	1951	21,506	23,995	45,501	2.6	46,949	3,037	1,482	36.6	1,287	55.1	7,464	15.6	88.6
	Minneap., St. P. & S. St. M. 1952	5,740	10,094	15,834	4.1	43,059	2,360	1,158	32.6	1,025	45.5	3,976	18.4	130.4
	1951	5,816	10,271	16,087	5.0	44,677	2,473	1,228	35.0	1,085	47.0	4,534	18.2	138.0
	Northern Pacific 1952	16,622	14,510	31,132	3.8	48,030	2,815	1,330	31.4	1,164	51.5	5,903	17.2	86.5
	1951	17,616	17,742	35,358	4.9	46,111	2,874	1,390	33.1	1,078	46.2	6,146	16.2	84.4
Southwestern Region	Atch., Top. & S. Fe (incl. G. C. & S. F. and P. & S. F.) 1952	43,654	40,822	84,476	3.6	62,373	2,892	1,119	25.3	1,221	72.2	7,673	21.7	134.2
	1951	42,155	38,789	80,944	4.3	57,225	2,821	1,098	25.5	1,314	77.0	7,797	20.4	127.5
	Chic., Burl. & Quincy 1952	19,117	26,292	45,409	2.4	53,414	2,824	1,272	29.5	1,260	62.7	6,444	19.0	105.1
	1951	14,388	29,949	44,337	2.5	52,242	2,846	1,306	30.4	1,296	62.3	6,441	18.4	92.3
	Chic., Rock I. & Pac. 1952	12,196	24,110	36,306	3.0	50,542	2,822	1,225	30.2	1,083	54.4	5,010	18.0	136.9
	1951	8,542	27,920	36,462	3.4	43,867	2,480	1,139	31.2	1,059	51.7	4,845	17.7	119.5
	Denver & R. G. Wn. 1952	6,899	9,328	16,227	3.0	51,336	2,981	1,393	30.8	1,212	53.4	8,245	17.3	116.4
	1951	6,979	8,220	15,199	3.6	48,206	2,935	1,367	30.6	1,252	57.0	8,039	16.5	113.3
	Southern Pacific 1952	28,096	50,707	78,803	2.0	51,773	3,077	1,250	27.8	1,247	69.5	12,489	17.0	117.6
	1951	24,941	51,941	76,882	2.8	49,899	3,050	1,271	27.7	1,275	68.3	11,854	16.5	110.2
	Union Pacific 1952	28,580	39,346	67,926	2.4	61,211	2,709	1,121	27.3	1,654	90.5	11,774	22.9	148.0
	1951	26,257	40,171	66,428	2.5	60,782	2,833	1,198	28.2	1,699	90.1	11,459	21.7	139.9
	Western Pacific 1952	2,280	4,310	6,590	4.6	68,742	3,055	1,412	29.3	1,835	85.6	11,174	22.7	209.7
	1951	2,104	5,129	7,233	4.0	67,580	3,121	1,409	28.2	1,801	88.5	10,710	21.7	132.2
Central Western Region	International-Gt. Northern* 1952	757	7,604	8,361	2.0	53,358	2,755	1,274	33.1	871	38.3	6,663	19.4	99.6
	1951	707	6,984	7,691	1.7	48,485	2,450	1,151	32.6	934	43.2	6,584	19.9	112.2
	Kansas City Southern 1952	930	7,535	8,465	3.4	73,834	3,766	1,794	32.9	1,350	59.3	12,295	20.0	195.6
	1951	1,040	6,334	7,374	2.8	72,277	3,657	1,708	31.4	1,254	58.0	10,527	19.9	111.8
	Mo.-Kans.-Texas Lines 1952	3,124	8,126	11,250	5.3	50,638	2,565	1,094	27.8	1,343	75.0	4,580	19.8	139.7
	1951	2,786	7,377	10,163	7.0	46,510	2,412	1,032	28.0	1,406	76.6	4,411	19.3	133.7
	Missouri Pacific* 1952	17,425	20,229	37,654	3.0	54,802	2,688	1,228	30.2	1,448	69.1	7,635	20.5	122.0
	1951	13,726	19,446	33,172	2.8	51,931	2,640	1,194	30.8	1,575	74.7	7,481	19.9	117.6
	Texas & Pacific 1952	2,347	7,953	10,300	2.9	63,295	2,912	1,160	27.5	1,343	75.3	7,370	21.8	163.6
	1951	2,221	8,311	10,532	4.5	57,505	2,773	1,118	26.9	1,275	70.2	7,075	20.8	101.7
	St. Louis-San Francisco 1952	8,465	18,118	26,583	2.5	44,959	2,664	1,163	30.0	1,015	53.4	5,610	16.9	110.2
	1951	6,611	16,233	22,844	3.2	43,437	2,470	1,111	30.4	1,106	55.4	5,462	17.6	73.4
	St. Louis Southw. Lines 1952	1,968	6,013	7,981	1.5	51,710	2,670	1,194	27.1	1,783	90.6	8,756	19.4	146.6
	1951	1,764	5,505	7,269	2.0	48,322	2,616	1,169	27.1	1,787	88.1	8,473	18.5	114.4
	Texas & New Orleans 1952	5,400	19,057	24,457	2.6	46,471	2,488	1,109	30.5	1,190	59.5	6,847	18.8	122.2
	1951	4,154	20,117	24,271	2.5	44,702	2,437	1,074	28.9	1,183	59.7	6,707	18.5	109.4

*Report of trustee or trustees. Compiled by the Bureau of Transport Economics, Interstate Commerce Commission. Subject to revision.



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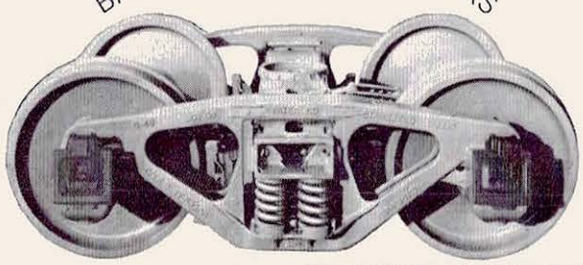

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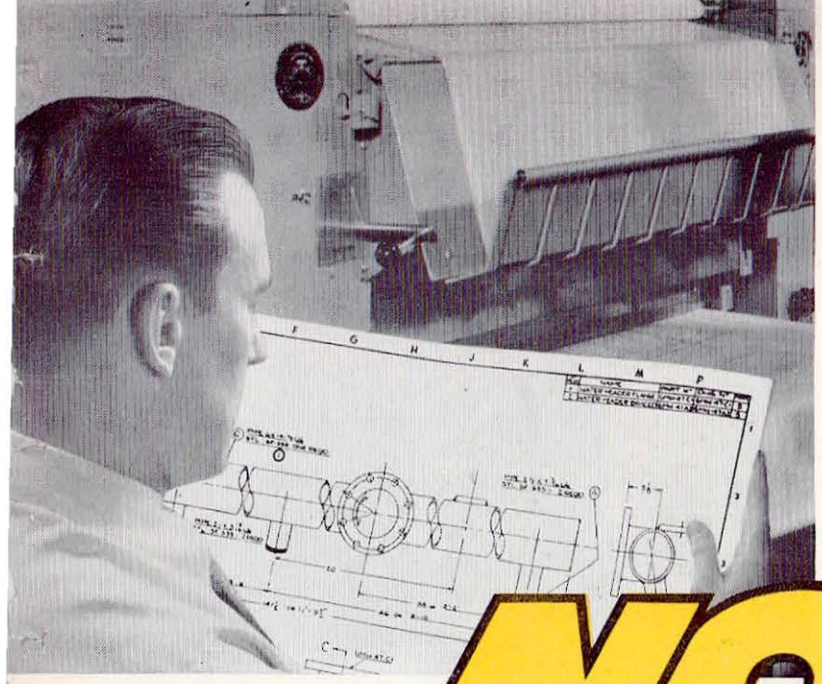

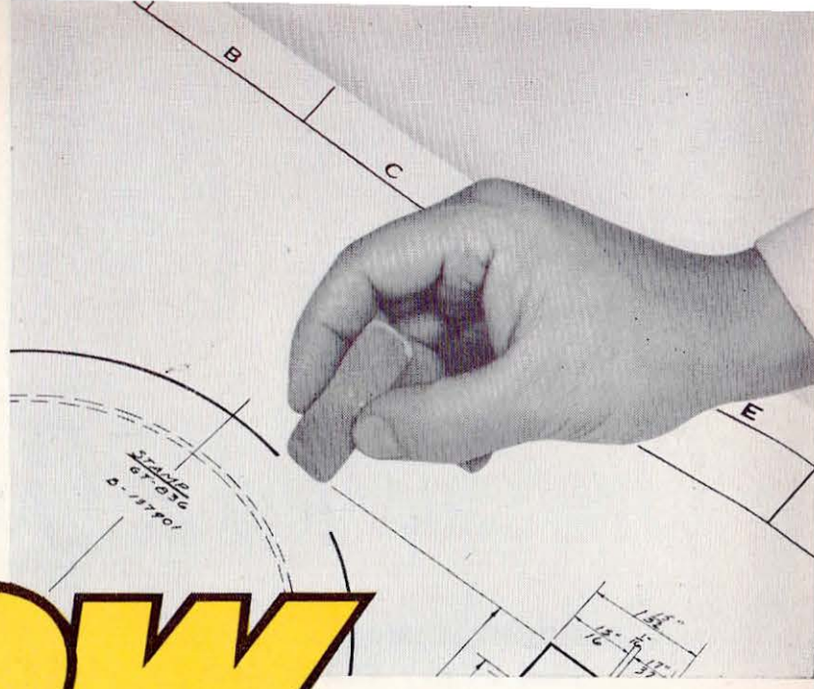

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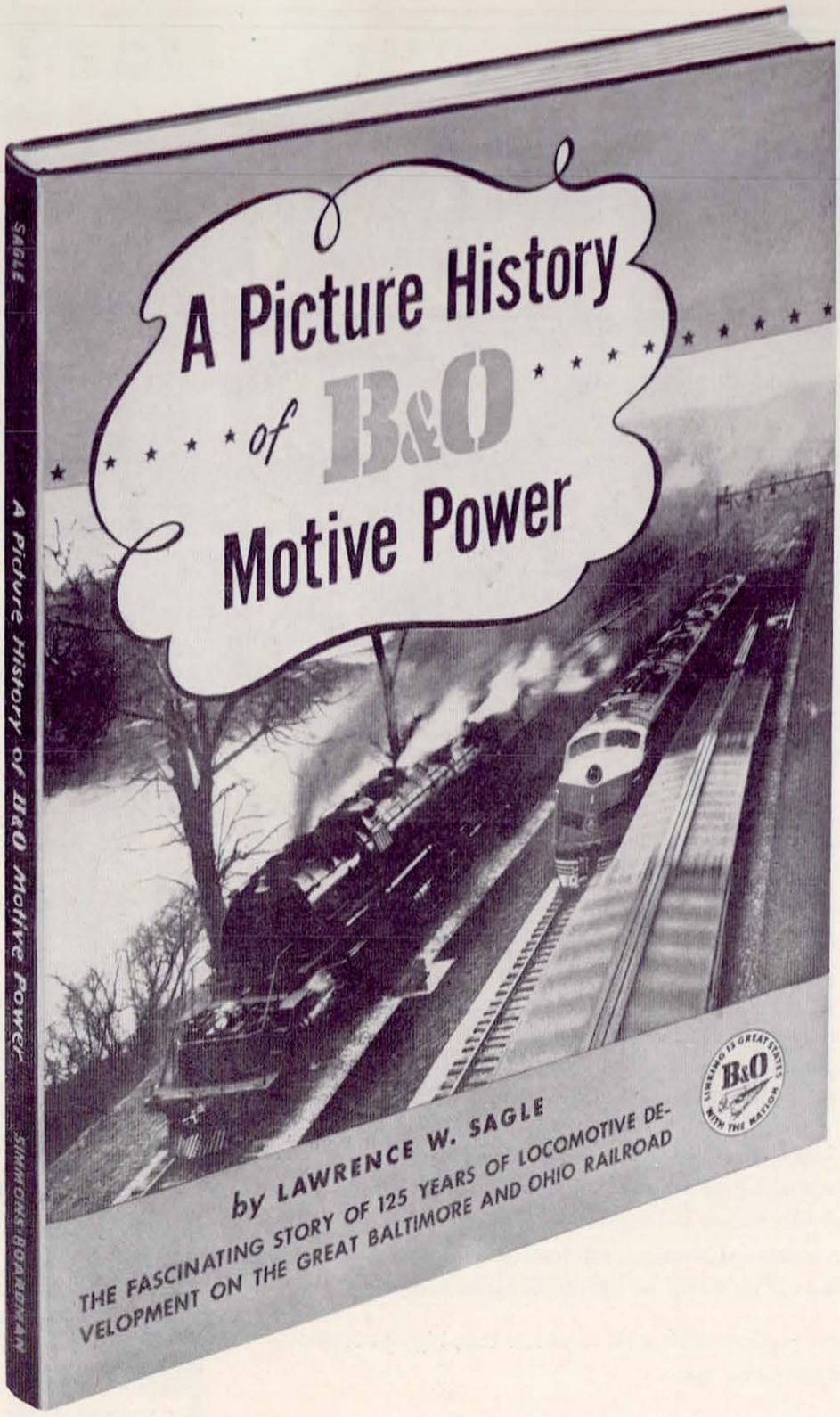
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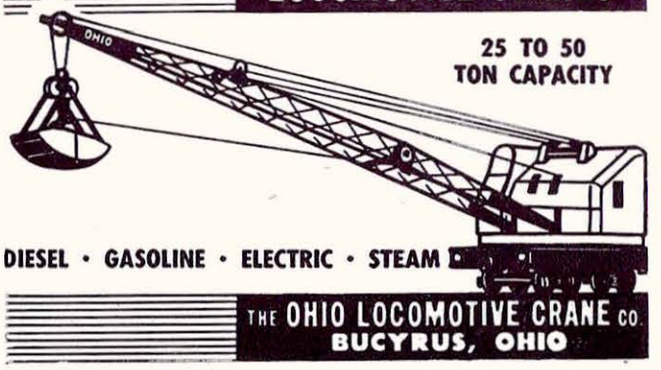

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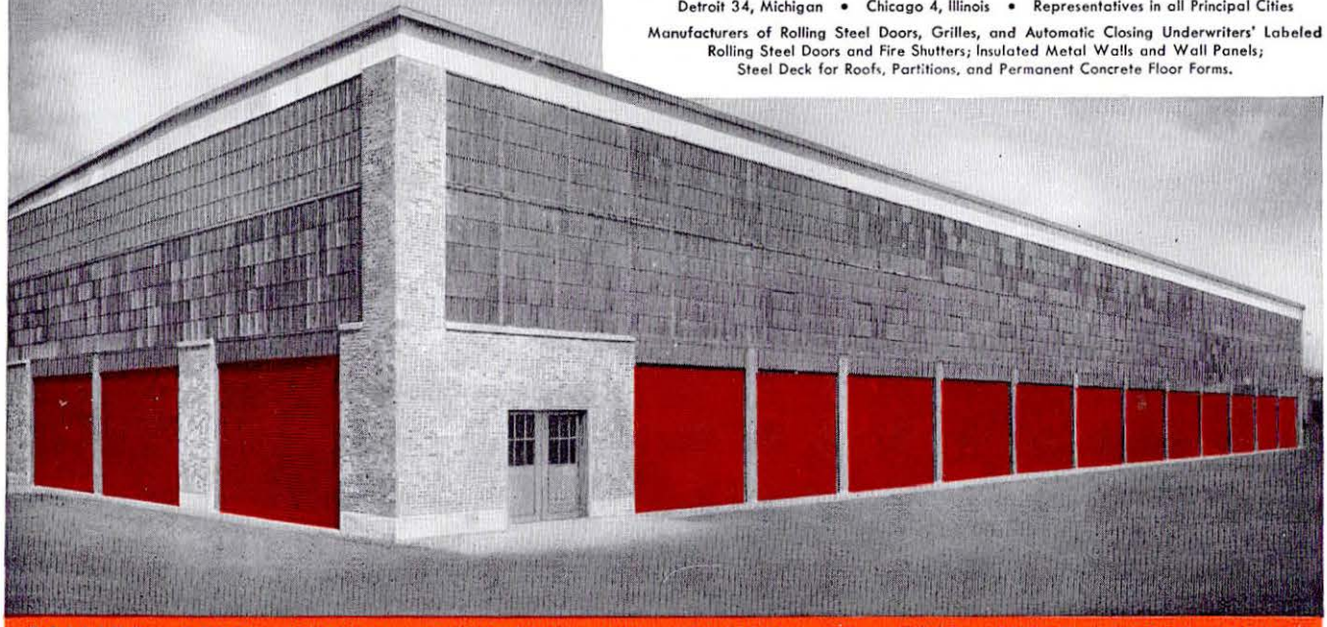

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